CRPL-F 28

IONOSPHERIC DATA

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PREPARED BY CENTRAL RADIO PROPAGATION LABORATORY
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NATIONAL BUREAU OF STANDARDS
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CONTENTS

TERMINOLOGY AND SCALING PRACTICES

The symbols and terminology used in this report are those adopted by the International Radio Propagation Conference, and given in detail on pages 24 to 26 of the report IRPL-C61, "Report of International Radio Propagation Conference," and in the section on "Terminology " in report IRPL-F5.

Beginning with IRPL-F14 the symbol L, defined as follows, is used in detailed tabulations of hourly values of ionosphere characteristics observed at Washington:

> L or 1 = critical frequency, muf, or muf factor for F1 layer omitted because no definite and abrupt change in slope of the h'f curve occurs either for the first reflection or for any of the multiples.

In the past, ionospheric conditions were summarized on a monthly basis by using average or mean values for each hour of the day for each month. However, following the recommendations of the International Radio Propagation Conference, held in Washington 17 April to 5 May 1944, beginning with data for 1 Jan. 1945, median values were used by IRPL wherever possible. Thus, median values are given for Washington, for all stations reporting directly to the CRPL, for the Canadian stations, and for all others sending to the CRPL detailed tabulations from which medians can be computed.

Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The monthly median values used here are the values equaled or exceeded on half the days of the month at the given hour. The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in the report referred to above, IRPL-C61.

a. For all ionospheric characteristics:
   Values missing because of A, B, C or F (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:
   Values missing because of E are counted as equal to or less than the lower limit of the recorder.
   Values missing because of D are counted as equal to or greater than the upper limit of the recorder.
   Values missing because of G are counted:
   1. For $f^{o}F2$, as equal to or less than $f^{o}F1$.
   2. For h'F2, as equal to or greater than the median.

Values missing for any other reason are omitted from the median count.

c. For muf factors (M-factors):

Values missing because of G are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because no Es reflections appeared, the equipment functioning normally otherwise, are counted as equal to or less than the median $f^{o}E$, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of hEs missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered as doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

It is expected that this practice will be of assistance in evaluating the monthly median Washington data.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

"Extent of E" is defined as follows: the highest value of $f^{o}E$. This is usually Es, but may include cases of normal E which were difficult to distinguish from Es, owing to the absence of a definite cusp.

MONTHLY AVERAGE AND MEDIAN VALUES OF WORLD-WIDE IONOSPHERIC DATA

The ionospheric data given here in Tables 1 to 77 and Figs. 1 to 118 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL predictions of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data:

Australian Council for Scientific and Industrial Research,
Radio Research Board:
- Brisbane, Australia
- Canberra, Australia
- Cape York, Australia
- Hobart, Tasmania
- Townsville, Australia

British Department of Scientific and Industrial Research,
Radio Research Board:
- Slough, England
- Burghead, Scotland
- Colombo, Ceylon
- Oslo, Norway
- Cairo, Egypt
- Falkland Is.
- Tromso, Norway

Canadian Radio Wave Propagation Committee:
- Churchill, Canada
- Ottawa, Canada
- St. John's, Newfoundland
- Prince Rupert, Canada
- Clyde, Baffin I.
- Swan River, Manitoba (Mobile unit)
- The Pas, Manitoba (Mobile unit)
- Gillam, Manitoba (Mobile unit)
- Portage la Prairie, Manitoba

New Zealand Radio Research Committee:
- Kermadec Is.
- Christchurch (Canterbury University College Observatory)
- Campbell I.
- Pitcairn I.
- Rarotonga I.

South African Council for Scientific and Industrial Research:
- Johannesburg, Union of S. Africa
- Capetown, Union of S. Africa

Scientific Research Institute of Terrestrial Magnetism, Moscow, U.S.S.R:
Bukhta Tikhaya, U.S.S.R.
Tomsk, U.S.S.R.
Sverdlovsk, U.S.S.R.
Moscow, U.S.S.R.
Leningrad, U.S.S.R.
Alma Ata, U.S.S.R.

Carnegie Institution of Washington (Department of Terrestrial Magnetism):
Huancayo, Peru
Watheroo, W. Australia

United States Army Signal Corps:
Leyte, Philippine Is.
Tokyo, Japan
Okinawa, I.

National Bureau of Standards (Central Radio Propagation Laboratory):
Washington, D. C.
San Francisco, California (Stanford University)
Baton Rouge, Louisiana (Louisiana State University)
San Juan, Puerto Rico (University of Puerto Rico)
Boston, Massachusetts (Harvard University)
Fairbanks, Alaska (University of Alaska, College, Alaska)
Wuchang, China (National Wuhan University)
Palmyra I.
Adak, Alaska
Guam I.
Maui, Hawaii
Trinidad, British West Indies

All India Radio (Government of India), New Delhi, India:
Bombay, India
Delhi, India
Madras, India
Peshawar, India

Radio Wave Research Laboratories, Central Broadcasting Administration:
Chungking, China
Peiping, China

Beginning with CRPL-F26, publication of tables of so-called "provisional data," reported to the CRPL by telephone or telegraph is discontinued. The reason for this change in policy is that users of the data hitherto published in this form receive it through established channels sooner than it reaches them in the F-series. Furthermore, having two sets of data, "provisional" and "final," for the same station for the same month leads to confusion.

It must be emphasized that there is no change in the methods used for rapid reporting and exchange of data. The change has to do only with the printing of provisional data in the F-series. Comments on this decision are invited.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of these errors are due to:

a. Differences in scaling records where spread echoes are present.

b. Omission of values where $f^{o}F2$ is less than or equal to $f^{o}F1$, leading to erroneously high values of monthly average or median values.

c. Omission of values where critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. Predictions for individual stations used to construct the charts may be more accurate than the values read from the chart since some smoothing of the contours is necessary to allow for the longitude effect within a zone.

Discrepancies between predicted and observed values are often ascribable to these effects.

IONOSPHERIC DATA FOR EVERY DAY AND HOUR AT WASHINGTON, D. C.

The data given in Tables 1 to 89 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Terminology and Scaling Practices."

IONOSPHERE DISTURBANCES

Table 90 presents ionosphere character figures for Washington, D.C., during November 1946, as determined by the criteria presented in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with American magnetic K-figures, which are usually covariant with them.

Table 91 lists for the stations whose locations are given the sudden ionosphere disturbances observed on the continuous field intensity recordings made at the Sterling Radio Propagation Laboratory during November 1946.

Table 92 gives provisional radio propagation quality figures for North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, October 1946, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day American geomagnetic K-figures.

The radio propagation quality figures for the North Atlantic are prepared from radio traffic and ionospheric data reported to the CRPL, in the manner described in detail in report IRPL-R31, "North Atlantic Radio Propagation Disturbances October 1943 through October 1945," issued 1 Feb. 1946.

The radio propagation quality figures for the North Pacific are prepared from radio traffic and ionospheric data reported to the CRPL, in a manner similar to that of IRPL-R31. The master scale of IRPL-R31 was used to formulate conversion scales for the North Pacific reports. Currently, beginning with CRPL-F23, issued July 1946, the North Pacific radio propagation quality figures reported are prepared from these revised conversion scales rather than, as hitherto, from the conversion scales of report IRPL-R13, "Ionospheric and Radio Propagation Disturbances, October 1943 through February 1945," issued 24 May 1945.

These radio propagation quality figures give a consensus of opinion of actual radio propagation conditions as reported by the half-day over the two general areas. It should be borne in mind, however, that though the quality may be disturbed according to the CRPL scale, the cause of the disturbance is not necessarily known. There are many variables that must be considered. In addition to ionospheric storminess itself as the cause, conditions may be reported as disturbed because of seasonal characteristics, such as are particularly evident in the pronounced day and night contrast over North Pacific paths during the winter months, or because of improper frequency usage for the path and time of day in question.

Insofar as possible, frequency usage is included in rating the reports. Where the actual frequency usage is not shown in the report to the CRPL, it has been assumed that the report is made on the use of optimum working frequencies for the path and time of day in question. Since there is a possibility that all of the disturbance shown by the quality figures is not due to ionospheric storminess alone, care should be taken in using the quality figures in research correlations with solar, auroral, geomagnetic or other data. Nevertheless, these quality figures do reflect a consensus of opinion of actual radio propagation conditions as found on any one half-day in either of the two general areas.

AMERICAN RELATIVE SUNSPOT NUMBERS

Table 93 presents the daily median values of relative sunspot numbers as reported by American observers for November 1946. The reports have been reduced, by appropriate constants, approximately to the Zurich scale of relative sunspot numbers. The monthly relative sunspot number is the mean of the daily median values listed in the table. This method was devised by Mr. A. H. Shapley while a member of the staff of the Department of Terrestrial Magnetism, Carnegie Institution of Washington. Details will be found in his article, "American Observations of Relative Sunspot Numbers in 1945 for Application to Ionospheric Prediction," Popular Astronomy, Vol. 54, No. 7, pp. 351-358, August 1946. The criteria for A observers have been modified slightly, beginning with September 1946. In order for an observer's report to be included in the American sunspot numbers, the mean deviation of the reduction factors for his observations for the four preceding months must have been within 15% of the 4-month running mean of his reduction factors, rather than within an interval of ± 0.16 of that running mean. This avoids favoring observers with small reduction factors and discriminating against observers with large reduction factors. In addition sunspot numbers must have been reported for at least one-half of the month during three-quarters of the preceding year. This will tend to restrict the observers to those whose observations are consistent from month to month without rejecting the work of observers for whom weather conditions are unsatisfactory for observations during some months of the year.

ERRATA

1. CRPL-F27, Table 34, p. 18:

   The data for Peshawar, India were observed at 2230 instead of 2300.

2. CRPL-F27, Fig. 37, p. 52:

   The curve between the F2 and lower E and Es actual data curves should be labeled "F1" instead of "E."

3. CRPL-F27, Tables 44, 45, 46:

Values of $f^{\circ}F2$ which are greater than 12.3 should be followed by "D."

INDEX OF IONOSPHERIC DATA SINCE APRIL 1941

The following index of tables and graphs of ionospheric data supersedes the first index, which appeared in IRPL-F17.

The first publication, "High Frequency Radio Transmission Conditions, April 1941, with Predictions for July 1941," bore no date of issue, and is referred to by the first date appearing in the title, namely, April 1941. This method of identification is continued in the index up to the publication, "High Frequency Radio Transmission Conditions, March 1942 and Predictions," which was the first one to bear an issue date, namely, April 6, 1942, and is referred to in the index by the month of issue, April. The month of issue is used from then until the numbered IRPL-F series begins. There were two issues in February 1943; confusion may be avoided by referring to the footnotes for that month in the index.

Beginning with the October 1943 issue, the title was changed to "Radio Propagation Conditions." Beginning with the February 1944 issue, there were two publications each month; one, "Radio Propagation Conditions," contained graphs of ionospheric data; the other, entitled "Monthly Averages of Ionospheric Data," contained tables only.

With the advent of the IRPL-F series, first issued in September 1944, graphs and tables appeared in the same publication.

Where provisional data were published, such tables have been indexed. Final data for the same month are nearly always in the same issue as their graphs and may be found through the graph section of the index. Where no tabulations of provisional data were published, index numbers refer to tables of final data. Footnotes have been added to clarify certain references in the index.

Attention is invited to the fact that errors in the tables and graphs of any issue of the F-series are, when found, corrected in the "Errata" section of subsequent issues.

Index of Tabulations of Ionospheric Data for 1941-1942

	1941 A	M	J	J	A	S	O	N	D	1942 J	F	M	A	M	J	J	A	S	O	N	D
Fairbanks, Alaska				27	27	27	27	27	27	26	26	26	26	26	26	26	26	26	26	26	26
Huancayo, Peru	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
San Juan, Puerto Rico	28	28	28	28	28	28	28	28	28												

Index of Graphs of Ionospheric Data for 1941-1942

	1941 A	M	J	J	A	S	O	N	D	1942 J	F	M	A	M	J	J	A	S	O	N	D
Fairbanks, Alaska				27	27	27	27	27	27	26	26	26	26	26	26	26	26	26	26	26	26
Huancayo, Peru	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
San Juan, Puerto Rico	28	28	28	28	28	28	28	28	28												
Washington, D. C.[1]	Ap	My	Je	Jy	A	S	O	N	D	J	F	Ap[2]	My	Je	Jy	A	S	O	N	D	F[3]

1 Graphs of data for April 1941 through February 1942 are identified by the first month appearing in the title; e.g., "High-Frequency Radio Transmission Conditions, April 1941, with Predictions for July 1941," contains graphs of Washington data for April 1941. There were no "issue dates" during this period.

2 Issue dates were given to the reports for the first time. Thus the graphs for March 1942 appeared in the April 6, 1942 issue.

3 Issue of February 4, 1943.

Index of Tabulations of Ionospheric Data for 1943-1944

	1943												1944											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Baton Rouge, Louisiana																My	Je	Jy	A	1	2	3	4	5
Brisbane, Australia																			1	2	2	3	4	5
Bukhta Tikhaya, U.S.S.R								19	19							6	6	19	19	19	19	6	6	
Burghead, Scotland																			1	1		3	4	6
Campbell I.																			1	1	2	3	5	7
Canberra, Australia																			1	2	2	3	4	5
Capetown, Union of S. Africa																					2	5	4	
Cape York, Australia																								7
Christchurch, N. Z.																			1	1	2	3	4	5
Christmas I.																								5
Churchill, Canada															My	Je	Jy	A	1	1	2	3	4	5
Clyde, Baffin I.																Je	Je	Jy	A	1	2	3	4	5
Delhi, India																			2	1	3	3	4	6
Fairbanks, Alaska	26	26	26	26	26	26	26	26	26							My	Je	Jy	A	1	2	3	4	5
Great Baddow, England																			1	2	2	3	5	5
Huancayo, Peru	28	28	28	28	28	28	28	28	28	28	28	28				My	Je	Jy	A	1	2	3	4	5
Kermadec Is.																			1	1	2	3	4	5
Madras, India																			4	4	4	12	12	12
Maui, Hawaii																My	Je	Jy	A	1	2	3	4	5
Moscow, U.S.S.R.															6	6	6	6	6	6	6	6	19	19
Ottawa, Canada																	Je	Jy	Jy	1	1	2	3	4	5
Pitcairn I.																							5	5	6
Reykjavik, Iceland																	My	Je	Jy	1	1	2	3	4	5
San Francisco, California	27	27	27	27	27	27	27	27	27	27							Je	Je	Jy	A	1	2	3	4	5
San Juan, Puerto Rico																My	Je	Je	A	A	1	2	3	4	5
Slough, England																			5	5	5	5	7	7
Snainton, England																				2	2			
Sverdlovsk, U.S.S.R.																			2	3	6	6	6	7
Tomsk, U.S.S.R.																			2	3	12	12	12	12
Trinidad, Brit. W. Indies															26		Je	Je	Jy	A	1	2	3	4	5
Washington, D. C.														F	Mh	Ap	M	Je	Jy	A	1	2	3	4	5
Watheroo, Australia														Ap	Je	My	Je	Je	Jy	A	1	2	3	5	6

Index of Graphs of Ionospheric Data for 1943-1944

	1943 J	F	M	A	M	J	J	A	S	O	N	D	1944 J	F	M	A	M	J	J	A	S	O	N	D
Baton Rouge, Louisiana							S	O	N	N	D	F	Mh	Ap	My	My	Je	A	1	2	2	3	4	5
Brisbane, Australia						S	S	O	N	D	J	Mh	Mh	Ap	My	Je	Jy	2	2	3	3	4	6	7
Bukhta Tikhaya, U.S.S.R.								19	19							6	6	6	19	19	19	19	6	6
Burghead, Scotland					Je	Jy	O	O	N	D	D	F	Mh	Ap	My	Je	Jy	A	2	2	3	3	7	7
Campbell I.																	15	15	15	15	15	15	15	15
Canberra, Australia					Jy	A	S	O	N	N	J	F	Mh	Ap	My	Je	Jy	2	2	3	3	4	6	7
Capetown, Union of S. Africa																						5	6	
Cape York, Australia																								8
Christchurch, N. Z.							S		N	D	J	F	Mh	Ap	My	Je	A	2	1	2	3	4	5	7
Christmas I.																								8
Churchill, Canada								S	O	N	D	J		F	Mh	Ap	My	Je	2	1	2	2	3	5	6
Clyde, Baffin I.																	Je	3	3	3	3	9	9	9	9
Delhi, India						S	S	D	D	D	D	F	Mh	Ap	My	Je	Jy	A	3	3	5	6	7	
Fairbanks, Alaska	26	26	26	26	26	26	26	26	26	D	J	J		F	Mh	Ap	My	Je	2	1	2	3	3	5	6
Great Baddow, England					Jy	A	S	O	N	D	D	F	Mh	Ap	My	Je	Jy	2	2	2	3	3	6	6
Guam I.																								6
Huancayo, Peru	28	28	28	28	28	28	28	28	28	D	J	F	Mh	Ap	Ap	My	Je	A	1	2	3	3	5	6
Kermadec Is.						S	S						Mh	Ap	My	Je	A	5	1	2	3	5	5	7
Madras, India																			4	4	4	12	12	12
Maui, Hawii															Ap	My	Je	2	1	2	3	5	5	7
Moscow, U.S.S.R.																6	6	6	6	6	6	6	19	19
Ottawa, Canada					Jy	A	S	S	O	N	D	J		F	Mh	Ap	My	Je	A	1	2	2	3	4	6
Pitcairn I.																						5	5	7
Reykjavik, Iceland																	Je	Je	2	1	3	3	3	7	7
San Francisco, California	27	27	27	27	27	27	27	27	27	27	J	F	Mh	Ap	My	Je	Jy	A	1	2	2	3	4	5
San Juan, Puerto Rico					Jy	A	S	O	N	D	J	F	Mh	Ap	My	Je	Jy	A	1	2	2	3	5	5
Slough, England																			5	5	5	5	7	7
Sverdlovsk, U.S.S.R.																			2	3	6	6	6	7
Tomsk, U.S.S.R.																			2	3	12	12	12	12
Trinidad, Brit. W. Indies															26	My	My	Je	2	1	2	3	4	5	8
Washington, D. C.	F[1]	Mh	Ap	My	Je	Jy	A	S	O	N	D	J		F	Mh	Ap	My	Je	Jy	A	1	2	3	4	5
Watheroo, Australia					Jy	A	S	O	N	D	J	F	Mh	Ap	2	2	2	2	1	5	5	7	7	7

1 Issue of February 22, 1943.

Index of Tabulations of Ionospheric Data for 1945-1946

	1945 J	F	M	A	M	J	J	A	S	O	N	D	1946 J	F	M	A	M	J	J	A	S	O	N	D
Adak, Alaska										15	21	18	21	20	22	22	24	23	24	25	27			
Alma Ata, U.S.S.R.	12			19	14	14			19	15	20	22	26			24	24							
Baton Rouge, Louisiana	6	7	8	9	10		12	13	14	16	17	17	18	19	20	21	22	23	24	25	27	28		
Bombay, India								16	17	19	21	21	25	24	24	27	27							
Boston, Massachusetts			8	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	27	28		
Brisbane, Australia	6	7	9	10	11	12	13	14	15	16	17	21	21	20	21	24	24	24	27	25				
Bukhta Tikheya, U.S.S.R.	11	11	12	12	14	14	15	15	19	20	20	20	22			23								
Burghead, Scotland	7	8		10	11	12	14	14	15	16	17	18	19	20	23	23	26	26						
Cairo, Egypt											18	19	20	20	22	23	25	28	27					
Campbell I.	7	8	9	10	11	12	13	14	15	16	17	18	21	21	22				27					
Camberra, Australia	6	8	9	10	11	12	13	14	15	16	17	19	19	20	23		24	25	27					
Capetown, Union of S. Africa	6	9	8	10	11	14	13	15	15	16	17	18	19	20										
Cape York, Australia	8	8	9	10	11	12	13	14	15	16	17	21	19	20										
Christchurch, N. Z.	7	7	8	10	11	12	13	14	15	16	17	18	20	20	21	22	24	24	26	27	27			
Christmas I.	7	8	8	10	10	12	12	14	14	16	16	18	19	20	21	21	23	23						
Chungking, China								15	15	16	17	18	19	19	21	22	24	25	26	26				
Churchill, Canada	6	7	8	9	10	11	12	13	14	15	17	17	18	19	20	21	22	24	24	25	27			
Clyde, Baffin I.	6		8	9	10	11	12	13	15	16	24	24	24	24	24	24	24	24	25	25				
Colombo, Ceylon				11	11	12	14	14	15	16	17	19	19		23	25	26	26						
Delhi, India	7	8	10	11	12	13	14	14	16	16	19	19	25	24	24	27	27							
Fairbanks, Alaska	6	7	8	9	10	11	12	14	14	15	16	18	19	20	20	21	22	23	24	25	27			
Falkland Is.												20	20	23	23	24	27	27						
Great Baddow, England	6	7	8	10	11	12	13	14	15	16	17	18	19	21	22									
Guam I.												18	19	22	22	22	25	24	25	27	27			
Hobart, Tasmania												21	20	20	22	22	24	25	27					
Huancayo, Peru	6	7	8	9	11	11	13	13	15	15	17	17	18	20	20	22	23	24	25	26				
Johannesburg, Union of S. Africa																	23	24	25	27	27			
Kermadec Is.	7	7	9	10	11	12	13	14	15	16	18	21	20	21	22	22	26	26	28	27				
Kochel, Germany								15																
Kwajalein Atoll	7																							
Leningrad (LDRS), U.S.S.R.	12	12	14	14	14	14	14	19	19	20	20	22				24	24							
Leningrad (WETKAS), U.S.S.R.										20	20	22	26											
Leyte, Philippine Is.						12	12	14	16	16	19	22	22	22	23	22	23	24	25	27	28			
Loshan, China													20	20	20									
Madras, India	12	12	12	12				16	17	19	21	21	25	24	24	27	27							
Maui, Hawaii	6	7	8	9	10	11	13	14	14	16	16	17	18	19	21	22	22	23	25	25	27			
Moscow, U.S.S.R.	11	11	11	12	14	14	14	19	19	19	20	22	26	25	23	23								
Moscow, (Krasnaja Pakhra), U.S.S.R.													26	25	25	25								
Okinawa I.																	25	24	25	28				
Oslo, Norway					14	18	15	15	16	17	25	18	20	21	23	25								
Ottawa, Canada			8	9	10	11	12	13	14	15	17	17	18	19	20	21	22	23	24	25	27	28		
Peiping, China																22	25	25	26	26				
Peshawar, India								16	17	19	21	21	25	24	24	27	27							
Pitcairn I.	7	8	9	10	11	12	13	14	15	16														
Portage la Prairie, Manitoba																								28
Prince Rupert, Canada						11	12	13	14	15	16	18	18	19	20	21	22	23	24	25	28			
Rarotonga I.		20	20	20	20	20	20	20	20	23	17	18	20	21	21	22	28	28	28	27				
Reykjavik, Iceland	6	7	8	9	10	11	12																	
St. John's, Newfoundland					10	11	12	13	14	15	17	17	18	19	20		22	23	24	25	27			
San Francisco, California	6	7	8	9	10	11	12	13	14	15	17	17	18	19	20	21	22	23	24	25	27			
San Juan, Puerto Rico	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
Singapore, British Malaya															24	24								
Slough, England	8	9	10	11	12	13	20	20	20	20	20	21	25	25	25	25	26	26						
Sverdlovsk, U.S.S.R.	10	11	11	12	14	14	14	15	19	19	20	20	25			23	24							
Swan River, Canada																22				26				
The Pas, Canada																	22		25					
Tokyo, Japan										19	19	19	22	22	22	23	23	24	25	26				
Tomsk, U.S.S.R.	11	11	11	12	14	14		20	15	20	20	20	26			23								
Townsville, Australia																		25	27					
Trinidad, Brit. West Indies	7	8	13	20	26		15		14	15	16	17	18	19	21	21	22	23	24	25	27			
Tromso, Norway															25	23	25	27	27					
Victoria Beach, Canada							21																	
Washington, D. C.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
Watheroo, Australia	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22	23	24	24	25				

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	1945 J	F	M	A	M	J	J	A	S	O	N	D	1946 J	F	M	A	M	J	J	A	S	O	N	D
Adak, Alaska										21	21	21	21	22	22	22	24	24	25	26	27			
Alma Ata, U.S.S.R.				19					22		20	22	26											
Baton Rouge, Louisiana										16	17	18	19	20	21	22	23	24	25	26	27	28		
Bombay, India									18	19	21	21	25	24	24	27	27	28	28					
Boston, Massachusetts										16	17	18	19	21	21	22	23	24	25	26	27	28		
Brisbane, Australia	18	18	18	18	18	18			17	17	19	21	21	22	23	24	24	25	27					
Bukhta Tikhaya, U.S.S.R							19	19	20	20	22		27											
Burghead, Scotland											21		21	25	25	25	26	26						
Cairo, Egypt										21	21		21	21	22	23	25	28	27	28				
Campbell I.																	28			27	28			
Canberra, Australia	18	18	18	18	18	18			17	17	19	21	21	22	23		24	25	27					
Capetown, Union of S. Africa											19	19	20	21										
Cape York, Australia	18	18	18	18	18	18			17	17	19	21	21	22										
Christchurch, N. Z.											18	19	19	20	26	23	24	24	26	27	27			
Christmas I.										17	18	19	20	20	22	22	24	24						
Chungking, China										17	17	20	20	21	22	23	24	25	26	26				
Churchill, Canada										16	17	19	19	20	21	24	23	24	25	26	27	28		
Clyde, Baffin I.																								
Colombo, Ceylon							18	17			19	19			23	25	26	26						
Delhi, India								17	19	21	21		25	24	24	27	27	28	28					
Fairbanks, Alaska										17	18	18	19	20	21	22	23	24	25	26	27	28		
Falkland Is.												21	21	23	23	24	27	27						
Great Baddow, England										16	18	18	20	21	22									
Guam I.												18	19	22	22		25	25		27	27			
Hobart, Tasmania													28	22	23	23	24	25	27					
Huancayo, Peru											18	18	19	20	21	22	23	24	25	26	28	28		
Johannesburg, Union of S. Africa																	23	24		27	27			
Kermadec Is.						23	23	23	23	23	23				22				28	27	28			
Leningrad,(LDRS), U.S.S.R.										20	20	22												
Leningrad (WETKAS), U.S.S.R.										20	20	22	26											
Leyte, Philippine Is.										19	19	22	22	22	23	24	24	25	27	28				
Loshan, China																								
Madras, India									18	19	21	21	25	24	24	27	27	28	28					
Maui, Hawaii										16	20	18	19	20	21	22	24	26	25	27	27			
Moscow, U.S.S.R.						19	19	19	19	20	20	22	26	25	25	25								
Moscow,(Krasnaja Pakhra), U.S.S.R.													26	25	25	25								
Okinawa I.																		25	26	27	28			
Oslo, Norway					18	18				17	25	18	20	21	23	25								
Ottawa, Canada										16	17	18	19	20	21	22	23	24	25	26	27	28		
Peiping, China																24	25	25	26	26				
Peshawar, India									18	19	21	21	25	24	24	27	27	28	28					
Pitcairn I.									18	18														
Portage la Prairie, Canada																						28		
Prince Rupert, Canada										16	17	18	19	20	21	22	23	24	25	26		28		
Rarotonga I.	20	20	20	20	20	20	20	20	23	23	23		23	23			28	28	28	27	28			
St. John's, Newfoundland										22	18	18	19	20	21		24	24	25	26	27			
San Francisco, California										16	17	18	19	20	21	22	23	24	25	26	27	28		
San Juan, Puerto Rico										16	17	18	19	20	21	22	23	24	25	26	27	28		
Singapore, British Malaya																24	24							
Slough, England							20	20	20	20	23	23	25	25	25	25	26	26						
Sverdlovsk, U.S.S.R.	19	19	19	19	19	20	20	20	20	22	20	20	25											
Swan River, Canada																22				26				
The Pas, Canada																	24		25					
Tokyo, Japan										19	19	19	22	22	22	23	23	24	25	26				
Tomsk, U.S.S.R.								20	20	26	20	20	26											
Townsville, Australia																			25	27				
Trinidad, Brit. West. Indies				20	26						17	18	19	20	21	22	23	24	25	26	27	28		
Tromso, Norway															25	23	25	27	27	28				
Victoria Beach, Canada						21																		
Washington, D. C.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
Watheroo, Australia										18	20	20	22	22	23	27		28	27					
White Sands, New Mexico																						28		

Table 1

Washington, D. C. (39.0°N, 77.5°W) November 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	260	(5.0)					2.6	(2.9)
01	265	4.7					2.5	2.8
02	270	4.4					2.6	2.8
03	260	4.4						2.8
04	250	4.2					2.0	2.9
05	250	3.8						2.8
06	260	3.7						2.9
07	240	6.5			110	1.9	2.9	3.1
08	230	(9.3)			110	2.5	3.4	(3.2)
09	230	(10.7)			110	2.9	3.9	(3.2)
10	230	11.4	210		100	3.3	3.8	3.1
11	230	(11.5)	220		100	3.4		3.1
12	230	(12.2)	215		100	(3.5)	4.0	3.0
13	230	(12.0)	220		100	3.4	3.8	3.0
14	230	12.5	220		100	3.2	3.5	3.0
15	230	12.5			110	2.8	3.5	3.0
16	230	11.6			110	2.2	2.7	3.0
17	220	(10.4)			100		2.8	(3.0)
18	220	(9.3)					2.4	(2.9)
19	230	(8.0)					2.4	(2.9)
20	230	(6.7)					2.7	(3.0)
21	250	(6.2)					2.9	(2.9)
22	250	(5.6)					2.8	(2.9)
23	250	5.4					2.7	2.9

Time: 75.0°W.
Sweep: 0.75 Mc to 11.5 Mc, automatic; supplemented when necessary by manual operation from 8.0 Mc to 17.0 Mc.

Table 2

Fairbanks, Alaska (64.9°N, 147.8°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	350	3.8					4.2	2.5
01	360	3.7					4.2	2.5
02	345	3.2					5.0	2.5
03	338	3.4					4.0	2.6
04	330	2.8					4.2	2.6
05	350	3.1					3.4	2.6
06	309	3.5					3.2	2.6
07	280	4.8				1.8	2.9	2.9
08	258	5.7				2.2	3.0	3.0
09	250	6.4				2.5	3.0	2.9
10	250	7.0				2.6	3.0	2.9
11	250	7.6	250	4.0		2.7	3.0	2.9
12	250	8.0	248	4.0		2.7	3.2	2.9
13	245	8.6				2.6	3.0	2.9
14	250	9.2				2.4	2.9	2.9
15	240	9.5				2.2		3.0
16	245	9.2				1.8	2.4	3.0
17	242	8.4				1.5	2.6	2.9
18	235	6.8					3.2	2.9
19	252	4.9					3.1	3.0
20	260	4.0					3.2	2.9
21	278	3.3					3.2	2.8
22	300	3.3					4.5	2.7
23	322	3.4					4.3	2.7

Time: 150.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.

Table 3

Churchill, Canada (58.8°N, 94.2°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	4.4					5.4	2.6
01	300	4.3					5.0	
02	290	4.4					4.1	2.8
03	310	4.0				2.7	3.3	2.9
04	340	3.3			110	2.9	3.6	2.8
05	355	4.2			130	3.0	3.5	2.7
06	330	4.0			130	3.0	3.2	2.8
07	290	4.9			130	3.0	2.8	3.0
08	280	5.8			125	2.7	2.6	3.0
09	290	6.9	240	3.6	120	2.8	2.5	3.0
10	280	7.9	240	3.9	120	2.9		2.9
11	290	8.5	240	4.1	120	3.0		2.8
12	290	8.7	230	4.2	120	3.0		2.9
13	280	9.4	240	4.3	120	2.9		2.8
14	280	9.5	240	4.0	130	2.9		2.8
15	265	9.9	240	3.6	130	2.7		2.9
16	250	9.6		3.1	130	2.5		2.9
17	250	9.0			130	2.6	2.3	2.8
18	265	7.2			130	2.6	2.8	2.8
19	280	5.0			120	2.7	2.5	2.8
20	280	5.0			125	3.0	2.8	2.8
21	290	4.8			130	2.8	3.8	2.7
22	300	4.8				2.5	4.6	2.7
23	285	4.9					6.4	2.7

Time: 90.0°W.
Sweep: 2.0 Mc to 16.0 Mc in one minute.

Table 4

Prince Rupert, Canada (54.3°N, 130.3°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	290	3.0						2.8
01	320	2.8					2.5	2.8
02	350	3.0						2.8
03	330	3.0					3.1	2.7
04	345	3.0					3.5	2.6
05	340	2.8					3.1	2.7
06	300	2.9					3.1	2.8
07	280	4.1					3.0	2.9
08	260	5.9	245	3.6	110	2.1	3.2	3.1
09	250	7.6	230	4.0	110	2.5	4.0	3.1
10	250	8.4	220	4.1	110	2.7	4.0	3.1
11	250	9.5	215	4.2	110	2.9	4.0	3.0
12	260	10.1	220	4.4	110	3.1	4.0	2.9
13	260	10.1	220	4.3	110	3.1	4.0	2.9
14	250	10.2	220	4.2	100	3.0	3.6	3.0
15	245	10.3	230	3.8	110	2.8	2.9	3.0
16	230	10.0	225	3.8	110	2.5	2.4	3.0
17	230	9.9			120	2.1	2.6	3.0
18	230	9.2					3.0	3.0
19	220	7.8					1.7	3.1
20	220	6.1						3.1
21	220	4.8						3.1
22	230	3.7						3.0
23	270	3.3						2.8

Time: 120.0°W.
Sweep: Manual operation.

Table 5

Portage la Prairie, Manitoba (49.9°N, 98.3°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	260	3.9						
01	280	3.7					1.9	
02	300	3.7					1.6	
03	300	3.6					1.8	
04	290	3.6					1.8	
05	290	3.5						
06	260	3.5						
07	250	4.9			115	1.8		
08	250	6.2	225	3.0	110	2.2		
09	245	7.8	210	3.7	110	2.5		
10	250	8.1	210	4.0	110	2.8		
11	260	8.8	210	4.4	100	3.0		
12	260	9.6	210	4.6	100	3.1		
13	250	10.5	210	4.2	100	3.1		
14	250	10.3	210	3.8	100	2.9		
15	250	11.1	220	3.6	100	2.8		
16	240	10.5	220	3.5	100	2.4		
17	240	9.8	240	3.0	110	2.0		
18	230	9.1						
19	220	8.0						
20	230	7.3						
21	240	5.8						
22	240	5.2						
23	260	4.6						

Time: 90.0°W.
Sweep: 1.2 Mc to 16.0 Mc in approximately two minutes.

Table 6

Ottawa, Canada (45.5°N, 75.8°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	275	5.0						2.9
01	275	4.5						3.0
02	280	4.2						3.0
03	290	3.6						3.1
04	300	3.6						3.1
05	285	3.2						3.0
06	260	4.0						3.1
07	220	6.5						3.2
08	220	8.4	210	3.8	115	2.6		3.1
09	220	9.5	200	4.0	110	2.9		3.1
10	220	10.6	200	4.2	110	3.1		3.0
11	230	11.1	200	4.4	110	3.3		2.9
12	230	11.7	200	4.5	110	3.3		3.0
13	230	11.6	200	4.5	110	3.3		2.9
14	230	11.6	210	4.4	110	3.2		2.9
15	225	11.5	210	4.0	110	3.0		3.0
16	220	11.2			120	2.6		3.0
17	220	10.6						3.0
18	210	10.1						3.0
19	220	8.5						2.9
20	230	7.6						2.9
21	240	6.9						2.9
22	260	6.2						2.8
23	270	6.0						2.9

Time: 75.0°W.
Sweep: 1.93 Mc to 13.5 Mc. Manual operation.

Table 7

Boston, Massachusetts (42.4°N, 71.2°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	5.7						2.6
01	300	5.4						2.6
02	300	5.0						2.6
03	298	4.5					1.6	2.6
04	288	3.7					1.6	2.6
05	280	3.7					1.4	2.7
06	275	5.0						2.9
07	258	7.3			130	2.2		2.9
08	260	8.3						2.9
09	265	9.2						3.0
10	265	8.7						2.9
11	280	(9.9)						(2.9)
12	295	9.4						2.8
13	280	(9.9)						(2.9)
14	280	(9.5)						(2.8)
15	275	9.5						2.9
16	250	9.7						2.9
17	250	8.9						2.9
18	250	8.0						2.8
19	258	7.8						2.7
20	265	7.4						2.7
21	292	6.8						2.6
22	298	6.5						2.6
23	300	6.0						2.6

Time: 75.0°W.
Sweep: 0.85 Mc to 13.75 Mc in one minute.

Table 8

San Francisco, California (37.4°N, 122.2°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	4.1					2.7	2.6
01	310	4.1						2.6
02	305	4.2						2.6
03	300	4.1						2.6
04	290	4.2						2.7
05	280	4.1						2.8
06	260	4.8					2.3	2.8
07	240	7.6			120	2.3		3.0
08	240	9.2	220	4.0	110	2.9		3.1
09	240	10.4	220	4.2	110	3.2		2.9
10	240	10.7	200	4.5	110	3.5		2.9
11	260	11.0	220	4.6	100	3.6		2.8
12	250	11.4	220	4.8	100	3.6		2.8
13	260	11.7	220	4.7	100	3.6		2.8
14	250	11.9	220	4.6	100	3.5		2.8
15	250	11.7	230	4.3	105	3.2		2.8
16	240	11.6			105	2.8	3.1	2.8
17	230	10.4			120	2.2	3.6	2.9
18	220	8.8					3.2	3.0
19	240	6.6					2.7	2.8
20	240	5.6						3.0
21	260	5.0						2.8
22	280	4.4						2.8
23	290	4.2						2.8

Time: 120.0°W.
Sweep: 0.8 Mc to 12.0 Mc in six minutes.

Table 9

White Sands, New Mexico (32.6°N, 106.5°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	4.4					3.1	2.9
01	300	4.4					3.1	
02	290	4.4					3.0	
03	290	4.5					3.7	
04	300	4.2					3.3	
05		4.2					3.1	
06		4.7					3.1	
07		8.5				2.1	3.3	
08	240	10.3				2.7	3.2	
09		10.7				3.3		
10		11.9				3.5		
11		12.0				3.7		
12	280	12.4			110	3.8		3.1
13		12.2				3.8		
14		12.2				3.5		
15		12.1				3.3	4.4	
16		11.8				2.8	3.9	
17		11.4				2.1	3.5	
18		9.6					3.3	
19		6.9					3.3	
20		6.0					3.2	
21		5.2					3.1	
22		5.2					3.3	
23	285	4.9					3.3	

Time: 105.0°W.
Sweep: 0.79 Mc to 14.0 Mc in 1.75 minutes.

Table 10

Baton Rouge, Louisiana (30.5°N, 91.2°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	290	5.0						3.0
01	290	5.0						3.0
02	280	5.0						3.0
03	270	4.7						3.0
04	270	4.6						3.0
05	290	4.6						3.1
06	265	5.5						3.0
07	260	8.1	250	3.7	130	2.2		3.2
08	260	9.3	240	(4.2)	120	2.9		3.2
09	260	9.5	240	4.5	120	3.2		3.3
10	260	9.6	230	4.7	120	3.4		3.2
11	270	9.7	230	4.9	120	3.6		3.3
12	270	9.7	230	5.0	120	3.6		3.3
13	265	9.7	240	5.0	120	3.6		3.3
14	260	9.7	240	4.8	120	3.5		3.2
15	260	9.6	240	4.5	120	3.3		3.2
16	260	9.5	240	4.2	120	2.8		3.2
17	250	9.4	250	3.6	130	2.1	2.9	3.2
18	235	9.2					3.0	3.2
19	240	7.2					2.6	3.1
20	250	6.1					2.6	3.1
21	270	5.7					2.8	3.0
22	280	5.4						3.0
23	290	5.2						3.0

Time: 90.0°W.
Sweep: 1.9 Mc to 9.8 Mc in three minutes, thirty seconds.

Table 11

San Juan, Puerto Rico (18.4°N, 66.1°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		6.9						2.9
01		6.5						3.0
02		5.8						3.0
03		4.9						2.9
04		4.0						2.8
05		3.8						2.6
06		4.5						2.8
07	270	8.2						3.1
08	280	9.8						3.0
09	300	11.0	250	4.1		3.2		3.0
10	310	11.4	240	4.8		3.5		3.0
11	325	11.4	230	4.9		3.6		2.9
12	330	11.5	240	4.9		3.7		2.9
13	330	11.8	240	5.0		3.7		2.9
14	320	11.5	230	4.9		3.5		2.8
15	310	11.3				3.4		2.8
16	300	10.8				3.2	4.2	2.9
17	280	10.2					3.8	2.9
18	280	9.2					3.4	3.0
19	290	7.6						3.0
20		7.0						2.9
21		6.4						2.8
22		6.7						2.8
23		6.4						2.8

Time: 60.0°W.
Sweep: 2.8 Mc to 14.0 Mc in eight minutes.

Table 12

Trinidad, Brit. West Indies (10.6°N, 61.2°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	240	9.3						3.3
01	230	8.1						3.4
02	220	6.1						3.5
03	230	4.5						3.3
04	255	3.5						3.0
05	285	3.5						3.0
06	260	6.0					2.5	3.2
07	230	9.1			120	2.5	3.2	3.3
08	250	11.6	220	4.8	120	3.2	3.8	3.2
09	260	13.5	220	5.2	120	3.5	4.0	3.2
10	260	13.8	220	5.2	115	3.8	4.4	3.1
11	280	14.0	220	5.4	120	4.0	4.4	3.0
12	280	14.4	220	5.4	120	4.0	4.8	3.0
13	280	14.6	210	5.3	120	3.9	5.0	2.9
14	280	14.5	220	5.2	120	3.7	5.2	2.9
15	280	13.7	220	5.1	120	3.4	5.0	2.9
16	260	12.9	225	4.6	110	3.0	4.7	2.9
17	250	13.0			110		4.0	2.9
18	250	12.4					4.4	3.0
19	260	12.2					4.2	3.0
20	240	11.6					3.0	3.0
21	240	10.2					2.4	2.9
22	260	9.9						2.9
23	260	9.8						3.1

Time: 60.0°W.
Sweep: Manual operation.

Table 13

Huancayo, Peru (12.0°S, 75.3°W) October 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	220	9.5						3.1
01	230	8.0						3.1
02	230	7.1						3.1
03	240	6.0						3.1
04	240	5.2						3.1
05	240	4.6						3.0
06	250	7.9				2.1	2.5	3.1
07	230	10.8				2.9	4.2	3.0
08	220	12.4					7.4	2.9
09	220	12.8	210	5.2			10.3	2.6
10	270	11.9	200	5.3			10.3	2.3
11	280	11.1	200	5.3			10.3	2.3
12	280	10.8	200	5.3			10.2	2.3
13	280	10.8	200	5.2			10.3	2.3
14	210	10.8	200	5.0			7.8	2.3
15	210	11.2					7.6	2.3
16	230	11.4					7.2	2.2
17	250	11.1				2.4	5.5	2.3
18	300	10.8				1.3		2.3
19	380	10.1						2.1
20	380	9.5						2.2
21	325	9.8						2.4
22	270	9.6						2.7
23	230	10.6						3.0

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.

Table 14

Prince Rupert, Canada (54.3°N, 130.3°W) September 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	280	3.2					2.9	3.0
01	335	3.0					3.0	2.8
02	365	2.8					3.1	2.8
03	335	3.0					3.3	2.8
04	315	3.0					3.0	2.8
05	315	2.8					3.6	2.8
06	285	3.8				1.6	1.8	3.0
07	285	5.0	255	3.7	115	2.1	3.6	3.0
08	305	5.4	225	4.1	105	2.6	3.8	3.1
09	315	6.4	225	4.3	115	3.0	4.0	3.0
10	330	6.4	215	4.5	115	3.2	4.2	3.0
11	345	7.0	215	4.7	115	3.3	4.1	3.0
12	325	7.0	205	4.8	105	3.4	4.1	3.0
13	325	7.6	225	4.9	115	3.4	3.9	2.9
14	305	7.7	225	4.8	105	3.4	4.0	3.0
15	295	7.5	215	4.6	105	3.2	3.9	3.1
16	290	7.6	225	4.3	115	3.0	3.4	3.0
17	265	7.6	235	4.0	115	2.7	3.4	3.0
18	245	7.4	235		120	2.3	2.2	3.1
19	235	6.8				1.8		3.2
20	225	6.0						3.2
21	225	5.3						3.2
22	235	4.2						3.1
23	260	3.8					3.2	3.1

Time: 120.0°W.
Sweep: Manual operation.

Table 15

Huancayo, Peru (12.0°S, 75.3°W) September 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	220	8.7						3.0
01	230	7.6						3.1
02	230	6.9						3.1
03	240	5.8						3.1
04	250	5.6						3.1
05	260	4.7						3.1
06	270	6.4				1.8	2.5	3.1
07	240	9.5				2.8	3.5	3.1
08	230	11.1				3.4	6.9	2.8
09	280	11.2	220	5.2		3.6	8.4	2.5
10	290	10.8	210	5.2		3.9	7.8	2.4
11	290	10.2	205	5.2		4.0	8.3	2.4
12	300	10.3	200	5.3		4.0	8.4	2.3
13	300	10.2	200	5.2		4.2	8.5	2.3
14	275	10.4	210	5.0		3.8	8.3	2.3
15	240	10.6	210	5.1		3.6	7.7	2.3
16	230	11.0				3.3	7.5	2.4
17	260	10.7				2.5	5.5	2.4
18	300	10.2				1.2	1.8	2.4
19	380	9.0						2.2
20	360	9.0						2.4
21	280	8.8						2.7
22	240	9.2						2.9
23	230	9.8						2.9

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.

Table 16

Rarotonga I. (21.3°S, 159.8°W) September 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		9.1						3.0
01		8.7						3.1
02		7.8						3.0
03		6.5						2.9
04		5.7						2.7
05		4.7						2.8
06		6.2						2.9
07	250	9.4						3.3
08	250	11.3						3.2
09	250	11.6						3.1
10	270	12.3						3.1
11	270	12.5						3.1
12	280	12.2						3.0
13	270	11.7						2.9
14	280	12.1						2.9
15	285	11.7						3.0
16	275	11.2						2.9
17	275	11.6						2.9
18	280	11.5						2.9
19		11.3						3.0
20		10.9						3.0
21		10.8						2.8
22		10.4						3.0
23		10.0						3.0

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc. Manual operation.

Table 17

Kermadec Is. (29.3°S, 177.9°W) September 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	300	5.6						2.8
07	275	8.2			150	2.4		3.1
08	300	9.0	275	4.3	130	2.9		3.1
09	305	9.8	270	4.8	130	3.3		2.9
10	300	10.2	270	5.0	125	3.5		2.9
11	320	10.4	250	4.9	125	3.6		2.8
12	320	10.4	270	4.9	130	3.5		2.8
13	320	10.1	270	4.8	125	3.6		2.8
14	310	9.4	255	4.7	125	3.6		2.8
15	300	9.4	265	4.6	130	3.3		2.8
16	300	9.0	275	4.2	130	2.8		2.8
17	285	8.6			125	2.2		2.8
18	275	8.6						2.8
19	300	7.6						2.6
20								
21								
22								
23								

Time: 180.0°E.
Sweep: 1.8 Mc to 12.0 Mc. Manual operation.

Table 18

Campbell I. (52.5°S, 169.2°E) September 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00								
01								
02								
03								
04								
05		3.1						2.7
06								
07		5.9						3.0
08		6.3						3.1
09		7.4						3.1
10		7.5						3.0
11		7.7						3.0
12		8.0						2.9
13		8.3						3.0
14		8.3						3.0
15		8.6						3.0
16		8.2						3.0
17		7.9						2.9
18		7.6						2.8
19		7.2						2.6
20								
21								
22								
23								

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc. Manual operation.

Table 19

Tromso, Norway (69.7°N, 18.9°E) August 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	347	6.6		4.5		2.9		
07	344	6.5		4.3		3.0		
08	341	6.5		4.6		3.1		
09	338	6.6		4.8		3.2		
10	352	6.6		4.6		3.2		
11	370	6.5		4.6		3.2		
12	358	6.2		4.6		3.2		
13	322	6.3		4.6		3.1		
14	238	6.4		4.6		3.1		
15	315	6.3		4.4		2.9		
16	300	6.4		4.0		2.7		
17	286	6.3		3.7		2.8		
18	300	6.2		4.6		2.8		
19	290	(5.9)				2.9		
20	310	(5.6)				2.8		
21								
22								
23								

Time: 0.0
Sweep: 0.8 Mc to 11.4 Mc in five minutes.

Table 20

Cairo, Egypt (30.6°N, 31.9°E) Auguet 1946*

Time	h'F2	foF2	h'F1	foF1	h'E	**foE	fEs	F2-M3000
00		(8.4)						
01		(8.4)				(2.6)		
02		(8.2)				(3.0)		
03		(7.4)						
04		(6.9)						(2.7)
05		(6.8)						
06		(8.2)				(2.6)		(3.1)
07		(7.9)				(3.1)		
08		(7.8)				(5.4)		(3.2)
09		(7.9)				(5.2)		
10		(8.7)				(5.5)		(2.7)
11		(9.2)				(5.2)		
12		(10.7)				(6.0)		(2.6)
13		(11.5)				(5.0)		
14		(12.1)				(5.6)		(2.8)
15		(12.6)				(4.6)		
16		(12.2)				(5.0)		(2.8)
17		(11.2)				(5.7)		
18						(4.6)		
19		(11.0)				(3.2)		
20		(10.1)						
21								
22								
23						(2.6)		

Time: 30.0°E.
*Medians computed from only 5 to 8 values; the etation ceaasd operating after August 14, 1946.
**Extent of "E." (See page 3, last paragraph.)

Table 21

Okinawa I. (26.3°N, 127.8°E) August 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		9.1					3.9	2.6
01		9.1					4.1	2.7
02		8.0					3.8	2.8
03		7.3					3.4	2.9
04		7.0					3.5	2.8
05		6.4					3.4	3.0
06		7.1					3.8	3.0
07		8.0				2.7	4.2	3.3
08		8.3				3.1	5.0	3.1
09		8.4				3.5	5.2	2.9
10		9.0		(5.6)		3.7	5.1	2.7
11		10.2		(5.6)		4.0	5.3	2.6
12		10.8		5.6		4.0	5.2	2.6
13		11.2		5.8		4.0	5.2	2.6
14		12.0		5.7		4.0	5.0	2.7
15		12.0		5.7		3.8	5.0	2.7
16		12.0		5.3		3.6	5.4	2.8
17		12.2		5.0		3.1	5.4	2.8
18		11.9				2.5	5.2	2.9
19		11.3					4.8	2.8
20		10.2					4.6	2.6
21		9.1					4.0	2.6
22		9.1					4.2	2.6
23		9.3					3.6	2.6

Time: 135.0°E.
Sweep: Manual operation.

Table 22

Leyte, Philippine Is. (11.0°N, 125.0°E) August 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		9.4					2.3	2.8
01		8.8						3.0
02		8.3						3.1
03		7.7						3.1
04		6.2						3.2
05		4.8					2.2	3.3
06		3.9					2.5	3.2
07		7.2				2.2	3.3	3.1
08		9.2				3.0	5.0	3.0
09		10.1				3.4	6.2	2.7
10		10.4				3.7	8.2	2.4
11		10.5					8.0	2.3
12		10.7					8.0	2.3
13		11.0					7.9	2.2
14		11.7					7.6	2.3
15		12.0					6.4	2.3
16		12.3					6.4	2.4
17		12.6				3.3	5.6	2.4
18		12.3				2.6	5.4	2.4
19		11.7					3.8	2.4
20		10.7					2.2	2.3
21		10.2						2.4
22		9.7					2.0	2.4
23		9.3					2.9	2.7

Time: 135.0°E.
Sweep: Lower limit of frequency, 1.6 Mc. Manual operation.

Table 23

Peshawar, India (34.0°N, 71.5°E) July 1946

Time	*	foF2	h'F1	foF1	h'E	**foE	fEs	***F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	330	7.8				3.8		
08	330	8.1				4.0		2.9
09	360	8.0				4.0		
10	390	9.2				4.0		
11	390	9.6				4.3		
12	405	10.4				4.3		2.5
13	390	10.6				3.8		
14	390	10.4				3.9		
15	390	10.2				4.2		
16	360	10.2				4.2		2.7
17	360	9.8				4.1		
18	330	9.6				4.2		
19	330	9.0				3.5		
20	330	8.4				3.4		2.8
21	360	7.8						
22	360	7.3				3.3		
2230	330	7.1						

Time: Local.
Sweep: Manual operation.
*Height at 0.83 foF2.
**Includes both normal and abnormal values of fE.
***M3000, average values; other columns, median values.

Table 24

Delhi, India (28.6°N, 77.1°E) July 1946

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	**F2-M3000
00	390	7.0						2.5
01	(390)	(6.7)						
02	390	7.1						
03	(390)	(6.6)						
04	360	6.6						2.6
05	360	6.4						
06	360	6.9						
07	360	7.8						
08	360	8.1						2.7
09	420	8.0						
10	450	9.2						
11	420	10.4						
12	420	11.2						2.5
13	420	12.0						
14	420	12.4						
15	[illegible]	(12.3)						
16	420	(12.3)						
17	405	11.7						
18	405	11.0						
19	390	9.2						
20	405	9.0						2.6
21	420	8.1						
22	390	7.7						
23	405	7.7						

Time: Local.
Sweep: Manual operation.
*Height at 0.83 foF2.
**M3000, average values; other columns, median values.

Table 25

...bay, India (19.0°N, 73.0°E) July 1946

...	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
...								2.6
...								
...								
...								
...								3.3
...								
...	(300)	(6.5)						
...	315	7.9						
...	390	8.5						2.6
...	450	9.5						
...	480	10.2						
...	540	11.6						
...	510	12.1						
...	495	12.5						
...	510	13.0						
...	480	13.3						
...	450	13.7						2.4
...	420	13.4						
...	420	12.8						
...	420	12.0						
...	450	10.8						2.4
...	435	9.4						
...	420	8.9						

...: Local.
...ep: Manual operation.
...ight at 0.83 f°F2.
...3000, average values; other columns, median values.

Table 26

Madras, India (13.0°N, 80.2°E) July 1946

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	(420)	7.0						
07	360	7.9						
08	420	9.0						
09	480	9.6						
10	540	10.0						
11	540	9.5						
12	600	9.2						
13	600	9.4						
14	600	9.8						
15	600	10.2						
16	600	10.5						
17	540	10.8						
18	540	10.8						
19	480	10.3						
20	480	9.4						
21	510	9.0						
22	420	8.3						
23								

Time: Local.
Sweep: Manual operation.
*Height at 0.83 f°F2.

Table 27

...tonga I. (21.3°S, 159.8°W) July 1946

...	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
...		5.3						3.0
...		4.7						3.0
...		4.3						3.1
...		4.0						2.9
...		3.5						2.8
...		3.2						2.8
...		3.4						2.7
...		6.6						3.1
...	250	9.4	245	4.3		3.3		3.1
...		10.5						3.3
...	290	11.6	240	5.0		3.8		3.3
...		10.0						3.2
...	290	9.4	240	5.2		4.0		3.1
...		9.5						2.9
...	300	10.0	250	5.2		4.2		2.9
...		10.1						2.9
...	280	9.7	250	4.5		3.5		3.0
...		10.0						3.1
...	250	9.5						3.1
...		7.8						3.0
...		7.3						2.8
...		7.2						2.8
...		7.0						2.8
...		6.3						2.9

...: 157.5°W.
...ep: 2.0 Mc to 16.0 Mc. Manual operation.

Table 28

Kermadec Is. (29.3°S, 177.9°W) July 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	300	3.4						2.8
07	270	6.0						3.1
08	275	8.0			135	2.4		3.2
09	275	8.8	270	4.3	130	2.9		3.2
10	290	9.2	270	4.4	130	3.2		3.1
11	290	8.8	260	4.6	125	3.2		3.1
12	280	8.2	250	4.5	130	3.3		3.1
13	320	8.4	250	4.6	125	3.2		2.9
14	310	8.6	270	4.6	125	3.2		2.9
15	300	8.4	275	4.2	130	3.0		2.9
16	285	7.8			125	2.5		3.0
17	275	7.6						3.0
18	265	6.4						2.9
19	270	5.2						2.9
20								
21								
22								
23								

Time: 180.0°E.
Sweep: 1.8 Mc to 12.0 Mc. Manual operation.

Table 29

Peshawar, India (34.0°N, 71.5°E) June 1946

Time	*	f°F2	h'F1	f°F1	h'E	**f°E	fEs	***F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	345	8.1				3.9		
08	360	8.2				4.0		2.7
09	390	9.1				4.1		
10	390	9.3				4.4		
11	390	10.0				4.3		
12	390	10.5				3.9		2.6
13	390	10.7				3.9		
14	390	10.6				4.0		
15	360	10.3				3.9		
16	360	10.3				4.0		2.7
17	360	9.8				4.0		
18	330	9.3				3.9		
19	330	9.1				3.8		
20	360	8.3				3.8		2.7
21	390	7.4				3.6		
22	390	7.2				4.0		
2230	390	7.0			(2300)	4.1		

Time: Local.
Sweep: Manual operation
*Height at 0.83 f°F2.
**Both normal and abnormal values of fE.
***M3000, average values; other columns, median values.

Table 30

Cairo, Egypt (30.6°N, 31.9°E) June 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	*fEs	F2-M3000
00		8.6					3.3	2.7
01		8.4					3.4	
02		8.2					3.1	2.8
03		7.7					3.2	
04		(7.2)					3.4	
05		7.0					3.0	
06		7.8					3.4	3.0
07		8.0					4.6	
08		8.3					4.6	2.8
09		8.8					5.6	
10		9.0					5.8	2.6
11		9.8					5.7	
12		10.0					4.6	2.6
13		10.4		(5.0)			4.2	
14		10.5		(4.9)			4.9	2.7
15		10.7					4.8	
16		10.4					4.6	2.8
17		10.0					4.3	
18		9.4					4.2	2.8
19		9.4					3.8	
20		8.7					3.9	(2.8)
21		8.8					4.0	
22		8.6					4.0	(2.6)
23		8.8					3.5	

Time: 30.0°E.
*"Extent of E." (See page 3, last paragraph.)

Table 31

Delhi, India (28.6°N, 77.1°E) June 1946

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	**F2-M3000
00	390	6.9						2.6
01	390	7.0						
02	390	6.8						
03	360	6.8						
04	360	6.6						2.7
05	360	6.6						
06	360	7.2						
07	360	7.8						
08	375	8.4						2.8
09	405	9.0						
10	420	9.4						
11	420	10.5						
12	420	10.8						2.5
13	420	11.3						
14	405	12.2						
15	420	12.0						
16	420	12.1						2.5
17	390	11.5						
18	390	10.4						
19	360	9.2						
20	390	8.5						2.7
21	390	8.0						
22	390	7.2						
23	390	7.1						

Time: Local.
Sweep: Manual operation.
*Height at 0.83 f°F2.
**M3000, average values; other columns, median values.

Table 32

Bombay, India (19.0°N, 73.0°E) June 1946

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	**F2-M3000
00								2.4
01								
02								
03								
04								2.7
05								
06								
07	330	7.8						
08	360	8.6						2.7
09	450	9.3						
10	480	10.2						
11	540	11.3						
12	540	11.8						
13	495	12.5						
14	480	12.9						
15	480	13.1						
16	420	13.4						
17	420	13.0						
18	420	12.5						
19	405	11.2						
20	420	9.0						2.5
21	420	7.8						
22	450	7.0						
23								

Time: Local.
Sweep: Manual operation.
*Height at 0.83 f°F2.
**M3000, average values; other columns, median values.

Table 33

Madras, India (13.0°N, 80.2°E) June 1946

Time	*	f°F2	h'F1	f°F1	h'E	f°E	fEs	**F2-M3000
00								2.6
01								
02								
03								
04								
05								
06								
07	330	8.2						
08	375	9.2						2.6
09	420	9.6						
10	480	9.6						
11	480	9.4						
12	540	9.2						
13	540	9.6						
14	540	9.8						
15	480	9.8						
16	480	10.5						
17	480	10.8						
18	450	11.0						
19	435	10.5						
20	480	(9.5)						
21	480	8.5						
22	450	7.8						

Time: Local.
Sweep: Manual operation.
*Height at 0.83 f°F2.
**M3000, average values; other columns, median values.

Table 34

Rarotonga I. (21.3°S, 159.8°W) June 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.9						2.7
01		3.9						2.7
02		3.9						2.8
03		4.0						3.1
04		3.5						2.9
05		3.4						2.8
06		3.5						2.9
07		6.5						3.1
08	250	9.2	250	4.4		3.0		3.2
09		10.6						3.2
10	275	10.6	250	5.0		4.0		3.3
11		10.0						3.2
12	300	9.6	250	5.3		4.3		3.0
13		9.5						2.9
14	290	9.8	245	5.2		4.2		3.0
15		10.0						3.0
16	260	10.0	245	5.0		3.6		3.0
17		10.0						3.2
18	240	8.9						3.2
19		7.5						3.2
20		6.1						2.9
21		5.6						3.0
22		4.9						2.9
23		4.4						2.9

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc. Manual operation.

Table 35 (Supersedes Table 21, CRPL-F24)

Watheroo, W. Australia (30.3°S, 115.9°E) June 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	265	3.6					2.8	2.9
01	250	3.5					3.1	2.9
02	255	3.7					3.1	3.0
03	255	3.7					3.0	3.0
04	248	3.7					3.2	3.0
05	235	3.4					3.0	3.1
06	235	3.0					3.0	3.2
07	230	4.7				1.7	3.2	3.3
08	240	7.2				2.3	3.2	3.4
09	250	8.5	240	4.2		2.7	3.2	3.4
10	250	8.7	232	4.4		3.0	3.4	3.4
11	255	9.0	230	4.5		3.1	4.1	3.3
12	270	9.2	225	4.6		3.2	3.8	3.2
13	265	9.4	222	4.7		3.2	4.1	3.2
14	270	9.6	240	4.4		3.2	4.0	3.2
15	250	9.5	230	3.9		2.9	3.8	3.2
16	245	9.5	235	3.4		2.6	4.0	3.2
17	225	8.5					3.6	3.2
18	210	6.7					4.0	3.2
19	232	5.1					3.2	3.1
20	230	3.8					3.2	3.2
21	240	3.2					3.0	3.0
22	262	3.2					3.0	2.9
23	265	3.5					3.2	2.8

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.

Table 36

Rarotonga I. (21.3°S, 159.8°W) May 1946

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		4.3						2.9
01		4.4						2.9
02		4.4						2.9
03		3.9						2.9
04		3.5						2.9
05		3.4						2.9
06		3.8						2.8
07		7.7						3.0
08	250	10.3	230	4.0				3.3
09		11.7						3.3
10	270	11.9	240	5.6				3.2
11		11.1						3.2
12	280	11.3	250	5.7				3.1
13		11.0						3.1
14	280	10.5	250	5.5				3.1
15		10.7						3.0
16	280	11.0	250	5.3				3.1
17		11.0						3.2
18	240	10.2						3.2
19		9.2						3.1
20		7.5						3.0
21		7.0						3.0
22		5.5						3.1
23		4.7						2.9

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc. Manual operation.

Table 37

Campbell I. (52.5°S, 169.2°E) May 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07								
08		5.9						3.1
09		6.8						3.2
10		7.3						3.2
11		8.4						3.1
12		8.8						3.1
13		8.4						3.1
14		8.8						3.1
15		8.8						3.2
16		8.4						3.0
17		7.5						3.0
18		(6.1)						3.0
19								
20								
21								
22								
23								

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc. Manual operation.

Table 38 (Supersedes Table 26, IRPL-F20)

Hobart, Tasmania (42.8°S, 147.4°E) January 1946

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	255	5.0					3.4	3.0
01	250	4.6					3.4	3.0
02	250	3.6					3.5	3.2
03	250	3.3					3.4	3.2
04	250	2.8					3.5	3.1
05	250	3.4					3.5	3.4
06	235	4.2				(2.2)	3.5	3.4
07	300	5.0	215	4.0	100	2.7	3.6	3.3
08	330	5.2	215	4.2	100	3.0	4.0	3.2
09	340	5.5	200	4.5	100	3.2	4.1	3.1
10	360	5.5	200	4.6	100	3.4	3.9	3.0
11	350	6.0	200	4.6	100	3.5	4.0	3.0
12	250	6.0	200	4.7		3.5	5.0	3.1
13	350	6.0	190	4.6		3.5	3.9	3.0
14	350	6.0	200	4.6	100	3.5	4.5	3.0
15	350	6.3	200	4.5	100	3.4	3.9	3.1
16	322	6.1	200	4.4	100	3.1	3.6	3.1
17	300	6.0	210	4.1	100	2.9	3.6	3.1
18	290	6.0	215	3.8	100	(2.5)	3.6	3.1
19	250	6.1				(1.9)	3.2	3.2
20	240	6.1					3.5	3.1
21	250	6.0					3.5	3.0
22	250	5.5					3.6	3.0
23	260	5.2					3.5	3.0

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in one minute, fifty-five seconds.

Table 39*

Huancayo, Peru (12.0°S, 75.3°W) September 1943

Time	h'F2	foF2	h'F1	FoF1	h'E	foE	fEs	F2-M3000
00	226	6.6						
01	229	6.0						
02	235	5.0						
03	247	4.4						
04	264	3.8						
05	263	3.4				0.8		
06	241	4.4				1.5		
07	261	6.8	224	4.1		2.4		
08	289	7.7	213	4.3		2.8		
09	312	8.0	209	4.4		3.1		
10	334	7.7	204	4.5		3.3		
11	348	7.4	198	4.5		3.4		
12	353	7.4	197	4.5		3.4		
13	344	7.5	199	4.5		3.4		
14	331	7.7	198	4.4		3.2		
15	308	8.0	197	4.3		3.0		
16	292	8.2	211	4.2		2.6		
17	242	8.2	239	4.0		2.1		
18	260	8.2				1.1		
19	294	7.5				0.8		
20	269	7.4						
21	241	7.6						
22	226	7.6						
23	224	7.0						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 40*

Huancayo, Peru (12.0°S, 75.3°W) August 1943

Time	h'F2	foF2	h'F1	FoF1	h'E	foE	fEs	F2-M3000
00	232	5.8						
01	236	5.4						
02	247	4.8						
03	255	4.3						
04	256	3.8						
05	266	3.1				0.7		
06	258	3.1				1.2		
07	251	5.6	231	4.0		2.2		
08	311	6.7	217	4.3		2.7		
09	325	7.1	205	4.4		3.0		
10	356	7.0	204	4.4		3.2		
11	373	6.8	200	4.5		3.4		
12	387	6.8	198	4.5		3.4		
13	374	6.7	196	4.5		3.4		
14	368	6.8	197	4.4		3.3		
15	351	7.0	198	4.4		3.0		
16	318	7.3	206	4.2		2.7		
17	254	7.5	234	4.0		2.1		
18	260	7.6				1.1		
19	278	7.1				0.9		
20	266	6.9						
21	255	6.8						
22	242	6.5						
23	237	6.0						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen Minutes.
*Average values.

Table 41*

Huancayo, Peru (12.0°S, 75.3°W) — July 1943

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	245	4.6						
01	252	4.3						
02	255	3.8						
03	256	3.4						
04	261	2.9						
05	263	2.4				0.8		
06	269	2.5				1.0		
07	250	4.7	248	3.8		2.0		
08	336	5.7	221	4.1		2.6		
09	370	6.1	210	4.2		2.9		
10	392	6.1	203	4.3		3.2		
11	413	5.9	203	4.3		3.4		
12	424	6.0	203	4.3		3.5		
13	400	6.2	202	4.3		3.5		
14	391	6.4	203	4.3		3.2		
15	375	6.6	207	4.2		2.9		
16	336	6.6	219	4.2		2.5		
17	254	6.7	235	4.0		2.0		
18	265	6.6				1.0		
19	276	6.2				1.0		
20	267	6.1						
21	253	5.9						
22	230	5.1						
23	244	4.8						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 42*

Huancayo, Peru (12.0°S, 75.3°W) — June 1943

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	246	4.2						
01	251	4.0						
02	253	3.9						
03	269	3.5						
04	278	3.1						
05	281	2.7				0.8		
06	266	2.9				1.1		
07	274	5.3	244	3.9		2.1		
08	312	6.4	229	4.2		2.6		
09	351	6.8	215	4.3		2.9		
10	385	6.6	210	4.4		3.2		
11	407	6.3	208	4.4		3.4		
12	415	6.2	209	4.4		3.4		
13	405	6.4	208	4.3		3.4		
14	383	6.6	205	4.3		3.1		
15	365	6.7	209	4.2		2.9		
16	327	6.8	221	4.2		2.5		
17	282	6.9	251	4.0		1.9		
18	270	6.6				1.1		
19	278	6.0				0.9		
20	275	6.0						
21	255	6.1						
22	241	5.3						
23	242	4.7						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 43*

Huancayo, Peru (12.0°S, 75.3°W) — May 1943

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	240	5.0						
01	242	4.7						
02	251	4.4						
03	264	3.8						
04	269	3.5						
05	275	3.2				0.9		
06	262	3.7				1.3		
07	274	6.1	241	4.3		2.2		
08	313	7.3	220	4.5		2.8		
09	338	7.7	216	4.5		3.0		
10	363	7.4	210	4.5		3.4		
11	376	7.2	211	4.5		3.4		
12	388	6.9	208	4.5		3.5		
13	379	7.1	208	4.5		3.4		
14	366	7.1	208	4.4		3.2		
15	341	7.3	210	4.4		2.9		
16	319	7.5	229	4.4		2.6		
17	267	7.4	252	4.2		1.9		
18	285	7.1				1.1		
19	294	6.7				1.1		
20	275	6.6						
21	254	6.7						
22	241	6.1						
23	240	5.3						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 44*

Huancayo, Peru (12.0°S, 75.3°W) — April 1943

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	236	7.3						
01	230	7.1						
02	235	6.0						
03	244	4.8						
04	258	4.1						
05	267	3.5				1.0		
06	264	4.5				1.4		
07	264	7.1	241	4.3		2.4		
08	291	8.6	232	4.5		2.9		
09	312	9.4	222	4.7		3.4		
10	327	9.2	214	4.7		3.6		
11	343	8.7	211	4.7		3.7		
12	349	8.5	213	4.7		3.6		
13	340	8.7	208	4.6		3.6		
14	327	9.0	208	4.6		3.5		
15	318	9.1	208	4.5		3.1		
16	309	9.1	228	4.4		2.9		
17	263	8.9	260	4.4		2.2		
18	288	8.4				1.2		
19	331	7.7				1.0		
20	311	7.6						
21	284	7.6						
22	249	7.7						
23	236	7.3						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 45*

Huancayo, Peru (12.0°S, 75.3°W) March 1943

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	246	6.1						
01	238	5.0						
02	233	5.[illegible]						
03	242	4.[illegible]						
04	257	3.4						
05	262	2.7				0.9		
06	277	4.3				1.4		
07	264	7.1	237	4.2		2.5		
08	289	8.4	224	4.4		3.0		
09	313	9.2	222	4.6		3.5		
10	338	9.0	218	4.7		3.7		
11	351	8.7	211	4.7		3.8		
12	356	8.6	210	4.7		3.8		
13	344	8.8	207	4.7		3.8		
14	334	9.1	206	4.6		3.7		
15	317	9.5	209	4.5		3.5		
16	300	9.8	213	4.4		3.0		
17	282	9.7	238	4.2		2.5		
18	270	9.4				1.5		
19	305	9.0				1.0		
20	301	8.9						
21	273	9.0						
22	262	9.0						
23	249	8.8						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 46*

Huancayo, Peru (12.0°S, 75.3°W) February 1943

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	276	5.8						
01	258	5.2						
02	256	4.2						
03	258	3.4						
04	256	2.8						
05	275	2.2				1.0		
06	255	4.1				1.5		
07	274	6.8	234	4.2		2.4		
08	305	7.8	217	4.4		3.0		
09	331	8.2	214	4.5		3.4		
10	354	8.2	211	4.6		3.4		
11	363	8.2	205	4.6		3.7		
12	367	8.3	205	4.6		3.7		
13	361	8.6	203	4.6		3.7		
14	344	9.0	203	4.5		3.6		
15	331	9.2	205	4.4		3.4		
16	322	9.4	206	4.4		3.1		
17	295	9.3	234	4.3		2.7		
18	263	9.0				1.8		
19	278	8.5				1.2		
20	288	8.0						
21	279	7.4						
22	283	7.0						
23	286	6.3						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Averege values.

Table 47*

Huancayo, Peru (12.0°S, 75.3°W) January 1943

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	286	4.8						
01	287	3.9						
02	291	3.2						
03	289	2.7						
04	284	2.4						
05	281	1.9				1.0		
06	254	4.6				1.8		
07	283	6.8	232	4.3		2.6		
08	305	7.8	217	4.4		3.0		
09	330	8.2	213	4.5		3.4		
10	370	8.3	205	4.5		3.5		
11	380	8.4	202	4.6		3.6		
12	396	8.3	201	4.6		3.6		
13	393	8.3	199	4.5		3.6		
14	370	8.6	197	4.4		3.5		
15	345	9.0	198	4.4		3.3		
16	333	9.1	201	4.3		3.0		
17	298	9.0	237	4.3		2.6		
18	260	9.0				1.7		
19	265	8.6				1.1		
20	288	7.8						
21	304	6.9						
22	306	5.8						
23	302	5.4						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 48*

Huancayo, Peru (12.0°S, 75.3°W) December 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	334	5.1						
01	319	4.1						
02	321	3.6						
03	310	3.4						
04	283	3.2						
05	280	2.8				1.1		
06	252	5.8	230	4.4		2.1		
07	284	7.7	225	4.4		2.7		
08	309	8.8	222	4.5		3.1		
09	330	9.2	210	4.6		3.4		
10	357	9.4	203	4.7		3.5		
11	368	9.5	201	4.7		3.7		
12	366	9.5	199	4.8		3.7		
13	366	9.6	200	4.7		3.7		
14	359	9.8	197	4.6		3.5		
15	345	10.1	205	4.6		3.3		
16	323	10.3	207	4.4		3.0		
17	277	10.1	234	4.3		2.5		
18	265	9.8				1.6		
19	274	9.3				1.1		
20	286	8.3						
21	314	7.1						
22	338	6.2						
23	337	5.6						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 49*

Huancayo, Peru (12.0°S, 75.3°W) — November 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	322	5.5						
01	301	4.9						
02	292	4.4						
03	288	3.8						
04	281	3.5						
05	271	3.3				1.1		
06	242	6.4				2.1		
07	277	8.2	227	4.4		2.7		
08	301	9.1	213	4.5		3.1		
09	316	9.5	210	4.7		3.5		
10	335	9.5	206	4.7		3.6		
11	340	9.5	202	4.7		3.7		
12	336	9.6	198	4.7		3.7		
13	331	9.8	201	4.6		3.7		
14	331	9.8	202	4.6		3.5		
15	324	10.0	205	4.5		3.3		
16	299	9.9	211	4.4		2.8		
17	252	9.6	250	4.1		2.4		
18	262	9.2				1.4		
19	284	8.9				1.0		
20	297	8.1						
21	330	7.3						
22	341	6.5						
23	334	6.0						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 50*

Huancayo, Peru (12.0°S, 75.3°W) — October 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	268	7.2						
01	252	6.3						
02	238	5.3						
03	251	4.5						
04	261	3.9						
05	264	3.4						
06	244	6.0				2.0		
07	272	8.1	228	4.3		2.5		
08	300	9.2	215	4.5		3.1		
09	317	9.3	210	4.6		3.4		
10	343	9.0	207	4.7		3.5		
11	339	8.2	202	4.7		3.6		
12	348	8.1	198	4.7		3.7		
13	341	8.4	199	4.6		3.6		
14	331	8.8	200	4.6		3.5		
15	316	9.1	202	4.3		3.1		
16	296	9.4	208	4.3		3.0		
17	244	9.6				2.2		
18	259	9.7				1.3		
19	280	9.2				1.1		
20	284	8.7						
21	271	8.4						
22	273	8.0						
23	272	7.8						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 51*

Huancayo, Peru (12.0°S, 75.3°W) — September 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	239	7.0						
01	226	6.7						
02	232	5.8						
03	243	4.9						
04	259	4.1						
05	266	3.6						
06	253	4.6				1.6		
07	264	6.8	232	4.2		2.4		
08	305	7.7	215	4.4		2.9		
09	333	8.0	210	4.5		3.3		
10	351	7.7	204	4.6		3.5		
11	373	7.5	201	4.6		3.6		
12	370	7.5	198	4.6		3.6		
13	363	7.7	198	4.6		3.6		
14	349	8.0	199	4.5		3.4		
15	325	8.3	199	4.3		3.1		
16	308	8.4	202	4.2		2.8		
17	242	8.4				2.2		
18	263	8.4				1.1		
19	300	7.8						
20	289	7.5						
21	256	7.6						
22	241	7.6						
23	238	7.3						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 52*

Huancayo, Peru (12.0°S, 75.3°W) — August 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	233	5.2						
01	233	5.0						
02	238	4.5						
03	241	4.0						
04	250	3.4						
05	280	2.8						
06	259	3.0				1.2		
07	255	5.4	234	4.0		2.2		
08	317	6.4	215	4.2		2.7		
09	342	6.9	211	4.3		3.1		
10	369	6.8	205	4.4		3.4		
11	394	6.6	199	4.4		3.5		
12	402	6.6	198	4.4		3.5		
13	400	6.6	197	4.4		3.4		
14	387	6.8	200	4.3		3.4		
15	364	6.7	195	4.3		3.0		
16	333	6.8	200	4.2		2.6		
17	249	6.8	240	4.0		2.2		
18	266	6.8				1.1		
19	270	6.6						
20	267	6.2						
21	241	6.2						
22	226	6.2						
23	227	5.5						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 53*

Huancayo, Peru (12.0°S, 75.3°W) July 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	230	4.4						
01	237	4.2						
02	246	4.0						
03	253	3.7						
04	275	3.1						
05	270	2.6						
06	268	2.7						
07	239	5.0				2.2		
08	318	6.0	214	4.2		2.6		
09	354	6.4	203	4.3		3.0		
10	375	6.2	203	4.4		3.5		
11	403	6.2	201	4.4		3.6		
12	413	6.2	200	4.4		3.6		
13	385	6.3	198	4.4		3.5		
14	374	6.5	197	4.3		3.4		
15	357	6.8	198	4.3		2.9		
16	321	6.8	207	4.2		2.6		
17	239	6.9	240			2.0		
18	258	6.8				1.1		
19	275	6.2						
20	274	5.8						
21	252	5.8						
22	235	5.4						
23	234	4.8						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 54*

Huancayo, Peru (12.0°S, 75.3°W) June 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	234	4.6						
01	236	4.3						
02	237	4.2						
03	245	3.7						
04	255	3.2						
05	269	2.8						
06	268	2.8				1.2		
07	236	5.2		3.9		2.2		
08	306	6.4	213	4.3		2.7		
09	328	6.8	207	4.2		3.0		
10	344	6.8	203	4.4		3.4		
11	380	6.6	200	4.4		3.5		
12	375	6.6	201	4.4		3.5		
13	370	7.0	196	4.4		3.5		
14	349	7.0	202	4.3		3.3		
15	343	7.1	201	4.3		3.0		
16	307	7.2	207	4.2		2.7		
17	238	7.2				1.9		
18	255	7.1				1.1		
19	267	6.3				1.0		
20	262	6.2						
21	246	6.4						
22	237	5.6						
23	231	5.2						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 55*

Huancayo, Peru (12.0°S, 75.3°W) May 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	215	6.2						
01	216	5.8						
02	217	5.2						
03	233	4.3						
04	252	3.8						
05	266	3.5						
06	262	4.1				1.3		
07	289	6.7	235	4.1		2.3		
08	296	8.1	219	4.4		2.8		
09	296	8.7	208	4.5		3.2		
10	308	8.4	204	4.6		3.4		
11	342	8.0	201	4.7		3.6		
12	340	7.9	199	4.7		3.6		
13	332	7.8	197	4.6		3.5		
14	328	8.0	197	4.6		3.4		
15	302	8.0	199	4.4		3.0		
16	284	8.3	211	4.2		2.6		
17	282	8.2				2.0		
18	276	7.9				1.0		
19	282	7.4						
20	268	7.3						
21	245	7.5						
22	249	7.2						
23	218	6.5						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 56*

Huancayo, Peru (12.0°S, 75.3°W) April 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	222	8.4						
01	222	7.7						
02	228	6.2						
03	243	5.1						
04	253	4.4						
05	252	3.8						
06	259	4.9				1.5		
07	253	7.9	236	4.3		2.4		
08	273	9.6	225	4.5		2.9		
09	293	10.4	218	4.7		3.4		
10	305	10.1	211	4.8		3.6		
11	313	9.6	205	4.8		3.7		
12	322	9.4	204	4.9		3.8		
13	319	9.6	202	4.8		3.8		
14	308	9.9	203	4.7		3.6		
15	293	10.2	205	4.6		3.3		
16	279	10.3	217	4.4		2.8		
17	250	10.0				2.3		
18	283	9.6				1.1		
19	320	8.8						
20	302	8.6						
21	267	8.9						
22	239	8.9						
23	226	8.7						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 57*

Huancayo, Peru (12.0°S, 75.3°W) March 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	232	8.4						
01	232	7.2						
02	239	5.9						
03	248	4.9						
04	258	4.1						
05	263	3.6				1.0		
06	260	4.9				1.8		
07	260	8.0	237	4.2		2.6		
08	277	9.8	224	4.6		3.0		
09	300	10.3	216	4.7		3.6		
10	319	9.8	209	4.8		3.9		
11	330	9.4	206	4.9		3.9		
12	331	9.3	200	4.9		4.0		
13	324	9.4	200	4.8		4.0		
14	325	9.6	204	4.7		3.8		
15	310	10.0	206	4.6		3.6		
16	294	10.0	207	4.4		3.0		
17	258	9.9	245	4.4		2.6		
18	273	9.6				1.7		
19	355	8.8				1.0		
20	333	8.4						
21	288	8.6						
22	259	8.7						
23	245	8.9						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Averege values.

Table 58*

Huancayo, Peru (12.0°S, 75.3°W) February 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	247	7.2						
01	237	6.0						
02	248	5.0						
03	260	4.4						
04	268	3.9						
05	258	3.6						
06	257	5.0				1.6		
07	265	7.6	232	4.1		2.5		
08	294	8.8	219	4.6		3.0		
09	327	9.4	213	4.8		3.4		
10	362	9.3	211	4.8		3.5		
11	381	9.0	205	4.8		3.7		
12	384	8.8	200	4.8		3.7		
13	385	8.8	200	4.8		3.7		
14	370	8.9	199	4.7		3.6		
15	355	9.0	203	4.7		3.4		
16	330	9.4	210	4.6		3.0		
17	289	9.6	226	4.3		2.7		
18	266	9.6				1.7		
19	297	9.3				1.1		
20	310	8.5						
21	318	8.0						
22	291	7.5						
23	265	7.5						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Averege values.

Table 59*

Huancayo, Peru (12.0°S, 75.3°W) January 1942

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	306	5.6						
01	286	5.0						
02	275	4.3						
03	278	3.9						
04	267	3.2						
05	275	2.8						
06	269	5.2				1.8		
07	287	7.6	238	4.3		2.6		
08	316	8.9	226	4.6		3.0		
09	348	9.4	222	4.7		3.3		
10	378	9.2	218	4.8		3.5		
11	383	8.8	215	4.8		3.8		
12	387	8.7	211	4.8		3.8		
13	389	9.0	207	4.8		3.8		
14	380	9.4	208	4.8		3.7		
15	364	9.8	209	4.7		3.4		
16	344	10.0	211	4.5		3.0		
17	288	10.1	243	4.4		2.6		
18	272	10.3				1.8		
19	284	9.9						
20	326	8.4						
21	341	7.8						
22	351	7.2						
23	324	6.6						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 60*

Sen Juan, Puerto Rico (18.4°N, 66.1°W) December 1941

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		4.7					4.2	
01		4.5					5.0	
02		4.6					5.8	
03		4.7					4.7	
04		4.7					5.5	
05		4.8					4.5	
06		4.7					6.3	
07		4.3					4.6	
08		4.0					4.8	
09		3.8					4.9	
10		4.1					5.0	
11		5.7					5.2	
12		7.7				3.2	4.2	
13		8.9		4.3		3.5	4.2	
14		9.2		4.5		3.7	5.5	
15		9.5		4.7		3.9	5.6	
16		9.1		4.8		4.0	5.8	
17		9.1		4.8		3.9	5.4	
18		9.2		4.7		3.8	5.4	
19		9.0		4.6		3.7	4.7	
20		8.5		4.4		3.6	5.2	
21		8.0		4.4		3.7	5.1	
22		6.8					4.4	
23		5.4					5.1	

Time: 0.0°.
*Averege values.
**These date observed 25 minutes pest the hour indiceted.

Table 61*

Huancayo, Peru (12.0°S, 75.3°W) December 1941

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	324	5.6						
01	328	5.1						
02	323	4.7						
03	318	4.2						
04	294	3.6						
05	283	3.6						
06	258	6.5				2.0		
07	285	8.6	239	4.4		2.7		
08	303	9.8	228	4.7		3.1		
09	338	10.1	223	4.8		3.5		
10	358	10.2	218	4.9		3.7		
11	364	9.9	217	4.9		3.8		
12	367	9.9	210	4.9		3.9		
13	366	10.1	208	4.9		3.8		
14	360	10.5	210	4.8		3.6		
15	342	10.8	217	4.7		3.3		
16	334	10.9	222	4.5		2.9		
17	256	10.9				2.4		
18	271	10.8				1.6		
19	289	10.5						
20	314	9.4						
21	331	8.3						
22	340	7.6						
23	330	6.6						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fiftsen minutes.
*Averege valuss.

Table 62*

San Juan, Puerto Rico (18.4°N, 66.1°W) November 1941

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	**fEs	F2-M3000
00		4.8					4.6	
01		4.8					8.5	
02		4.9					8.5	
03		4.8					4.5	
04		4.7						
05		4.8						
06		4.6						
07		4.3					4.4	
08		3.9						
09		3.6						
10		4.2						
11		6.2				2.3		
12		8.3		4.0		3.0		
13		9.4		4.2		3.4	6.0	
14		9.9		4.4		3.8	6.0	
15		10.0		4.6		3.9	5.0	
16		9.8		4.7		4.0	4.8	
17		9.7		4.6		3.9	5.5	
18		9.3		4.5		3.8	5.5	
19		9.3		4.3		3.6	5.2	
20		8.9		4.2		3.2	5.3	
21		8.4		4.0		2.5	4.7	
22		7.2					6.1	
23		5.5					7.8	

Time: 0.0°.
*Average values.
**These data observed 25 minutes past the hour indicsted.

Tsble 63*

Huancayo, Peru (12.0°S, 75.3°W) November 1941

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	330	6.6						
01	304	5.8						
02	288	5.1						
03	286	4.6						
04	277	4.1						
05	275	3.7						
06	258	6.8				2.2		
07	281	9.1	239	4.3		2.8		
08	302	10.2	231	4.7		3.1		
09	320	10.4	224	4.8		3.5		
10	340	10.3	219	4.9		3.7		
11	347	10.1	218	4.9		3.9		
12	347	10.2	214	4.9		3.8		
13	352	10.4	210	4.9		3.8		
14	344	10.7	213	4.8		3.5		
15	332	10.9	222	4.6		3.2		
16	315	10.9	231	4.4		2.9		
17	263	10.8				2.3		
18	277	10.7				1.3		
19	308	9.8						
20	333	9.4						
21	347	8.6						
22	356	7.9						
23	343	7.3						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Aversge values.

Table 64*

San Juan, Puerto Rico (18.4°N, 66.1°W) October 1941

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	**fEs	F2-M3000
00		5.2					3.9	
01		4.6					4.6	
02		4.6					4.8	
03		4.5					5.3	
04		4.6					4.5	
05		4.6					5.2	
06		4.6					5.0	
07		4.1					4.1	
08		3.6						
09		3.2					4.0	
10		4.1					4.8	
11		6.1				2.5	5.2	
12		7.6		4.0		3.2	4.4	
13		8.4		4.2		3.5	4.8	
14		9.2		4.5		3.8	5.5	
15		9.8		4.6		4.0	4.9	
16		10.2		4.8		4.0	7.2	
17		10.7		4.8		4.0	7.2	
18		11.2		4.7		4.0	5.9	
19		11.1		4.4		3.8	5.1	
20		10.5		4.3		3.6	5.5	
21		9.5		4.0		2.9	6.0	
22		8.2		3.8			5.2	
23		6.5					4.5	

Time: 0.0°.
*Avsrage values.
**These data observed 25 minutes past the hour indicated.

Table 65*

Huancayo, Peru (12.0°S, 75.3°W) October 1941

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	250	8.0						
01	245	6.8						
02	248	5.9						
03	257	5.2						
04	268	4.7						
05	280	4.3						
06	256	6.7				2.0		
07	278	9.0	243	4.3		2.7		
08	302	10.2	233	4.6		3.2		
09	323	10.7	227	4.8		3.6		
10	347	10.6	221	4.8		3.7		
11	357	9.9	219	4.9		3.8		
12	347	9.4	214	4.8		3.9		
13	357	9.4	210	4.8		3.8		
14	348	9.6	211	4.7		3.6		
15	335	9.9	215	4.6		3.2		
16	296	10.2	229	4.3		2.8		
17	265	10.3				2.2		
18	288	10.1				1.1		
19	351	9.4						
20	349	8.6						
21	328	8.3						
22	306	8.3						
23	274	8.2						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 66*

San Juan, Puerto Rico (18.4°N, 66.1°W) September 1941

Time	h'F2	foF2	h'F1	FoF1	h'E	foE	**fEs	F2-M3000
00		6.5					4.6	
01		5.6					5.2	
02		5.1					5.9	
03		5.0					4.5	
04		5.0						
05		4.9						
06		4.8						
07		4.4					4.8	
08		3.8					4.8	
09		3.6					4.0	
10		4.4		3.2		2.4		
11		5.8		3.6		2.5	4.2	
12		6.6		4.1		3.3	5.0	
13		7.1		4.4		3.7	4.6	
14		7.9		4.6		3.8	4.8	
15		8.7		4.8		3.9		
16		9.4		4.8		4.0	5.4	
17		10.0		4.8		4.1		
18		10.1		4.8		4.0	5.2	
19		10.2		4.6		4.0	4.9	
20		10.0		4.4		3.8	4.7	
21		9.6		4.0		3.3	4.4	
22		8.9		3.6		2.7	4.1	
23		7.8					4.6	

Time: 0.0°.
*Average values.
**These data observed 25 minutes past the hour indicated.

Table 67*

Huancayo, Peru (12.0°S, 75.3°W) September 1941

Time	h'F2	foF2	h'F1	FoF1	h'E	foE	fEs	F2-M3000
00	245	7.4						
01	254	6.6						
02	259	5.9						
03	270	5.4						
04	294	4.8						
05	288	4.3				0.7		
06	269	5.5				1.7		
07	262	8.1	242	4.3		2.6		
08	305	9.4	233	4.6		3.0		
09	330	9.7	225	4.8		3.4		
10	353	9.3	220	4.9		3.7		
11	369	9.1	216	4.9		3.8		
12	383	9.0	211	4.9		3.8		
13	376	8.9	212	4.9		3.7		
14	361	9.0	213	4.8		3.5		
15	347	9.0	213	4.7		3.3		
16	312	8.9	220	4.4		2.8		
17	263	9.0				2.3		
18	290	8.9				1.2		
19	348	8.0				0.7		
20	332	7.7						
21	284	7.9						
22	252	8.0						
23	235	7.9						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 68*

San Juan, Puerto Rico (18.4°N, 66.1°W) August 1941

Time	h'F2	foF2	h'F1	FoF1	h'E	foE	**fEs	F2-M3000
00		7.6					5.4	
01		7.0					5.5	
02		6.4					4.9	
03		6.1					4.8	
04		6.1					4.9	
05		6.1					6.6	
06		6.0					5.0	
07		5.5					5.8	
08		5.1					5.1	
09		4.8					5.2	
10		4.9					4.6	
11		5.8		4.0		3.1	4.5	
12		6.5		4.0		3.5	4.9	
13		6.6		4.6		3.7	5.1	
14		7.1		4.8		4.0	4.9	
15		8.0		4.8		4.2	5.1	
16		8.9		4.9		4.2	5.9	
17		9.6		4.9		4.2	6.3	
18		10.1		4.9		4.2	6.2	
19		10.1		4.8		4.1	6.1	
20		9.8		4.6		3.9	5.4	
21		9.7		4.3		3.6	5.3	
22		9.2		3.8		3.2	5.2	
23		8.3					5.6	

Time: 0.0°.
*Average values.
**These data observed 20 minutes past the hour indicated.

Table 69*

Huancayo, Peru (12.0°S, 75.3°W) August 1941

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	228	6.8						
01	233	6.2						
02	236	5.8						
03	247	5.0						
04	261	4.4						
05	274	4.0						
06	278	4.1				1.3		
07	247	6.7				2.3		
08	303	8.0	233	4.6		2.8		
09	330	8.5	225	4.8		3.3		
10	356	8.4	220	4.8		3.6		
11	386	8.1	214	4.9		3.8		
12	390	8.0	210	4.9		3.8		
13	394	7.9	208	4.9		3.7		
14	387	8.0	211	4.8		3.6		
15	358	8.2	214	4.7		3.2		
16	326	8.1	222	4.5		2.8		
17	256	8.2				2.2		
18	282	8.4				1.1		
19	318	7.7						
20	303	7.3						
21	266	7.3						
22	236	7.5						
23	229	7.3						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 70*

San Juan, Puerto Rico (18.4°N, 66.1°W) July 1941

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs**	F2-M3000
00		7.2					4.6	
01		6.8					5.0	
02		6.5					4.7	
03		6.3					5.3	
04		6.3					5.1	
05		6.1					4.3	
06		5.7					4.2	
07		5.2						
08		4.9						
09		4.7						
10		4.8					6.3	
11		5.4		3.5			5.2	
12		6.0		4.2		3.5	4.6	
13		6.5		4.5		3.6	5.7	
14		7.0		4.6		3.9	6.3	
15		7.6		4.7		4.1	5.4	
16		8.3		4.8		4.2	5.8	
17		8.7		4.7		4.1	5.1	
18		8.6		4.7		4.1	5.7	
19		8.8		4.6		4.0	5.9	
20		8.8		4.5		3.9	5.7	
21		8.7		4.2		3.6	5.0	
22		8.3		4.0			5.1	
23		7.7					5.6	

Time: 0.0°.
*Average values.
**These data observed 20 minutes past the hour indicated.

Table 71*

Huancayo, Peru (12.0°S, 75.3°W) July 1941

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	252	5.2						
01	258	5.1						
02	260	4.8						
03	254	4.3						
04	262	3.3						
05	273	3.0						
06	275	3.4				1.2		
07	246	5.8				2.2		
08	312	7.1	228	4.5		2.7		
09	353	7.5	218	4.6		3.1		
10	377	7.2	214	4.7		3.4		
11	415	7.1	211	4.7		3.6		
12	415	7.1	209	4.7		3.7		
13	420	7.2	207	4.7		3.6		
14	417	7.2	207	4.7		3.5		
15	386	7.2	211	4.6		3.1		
16	350	7.3	224	4.4		2.6		
17	256	7.4				2.1		
18	274	7.4				1.1		
19	287	7.0						
20	274	6.8						
21	255	6.8						
22	252	6.0						
23	251	5.5						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 72*

San Juan, Puerto Rico (18.4°N, 66.1°W) June 1941

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		7.7						
01		7.2						
02		6.7						
03		6.6						
04		6.6						
05		6.4						
06		5.7						
07		5.2						
08		4.7						
09		4.4						
10		4.6						
11		5.4		4.0				
12		6.4		4.1		3.4		
13		7.2		4.4		3.6		
14		7.6		4.6		3.8		
15		8.3		4.6		3.9		
16		8.8		4.6		4.0		
17		9.2		4.6		4.0		
18		9.9		4.6		3.9		
19		9.8		4.5		3.8		
20		9.8		4.3		3.6		
21		9.4		4.0		3.3		
22		8.9		4.0				
23		8.3						

Time: 0.0°.
*Average values.

Table 73*

Huancayo, Peru (12.0°S, 75.3°W) June 1941

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	236	4.8						
01	244	4.6						
02	252	4.5						
03	259	4.1						
04	260	3.8						
05	267	3.4						
06	270	3.5				1.2		
07	244	5.8	250			2.2		
08	311	7.2	220	4.5		2.7		
09	328	7.4	214	4.6		3.0		
10	363	7.2	209	4.7		3.2		
11	378	7.1	203	4.7		3.4		
12	389	7.1	206	4.7		3.5		
13	387	7.3	208	4.7		3.4		
14	369	7.4	212	4.6		3.3		
15	343	7.5	212	4.5		2.9		
16	296	7.8	222	4.4		2.5		
17	251	7.8				2.0		
18	275	7.5				1.0		
19	288	6.8						
20	276	6.6						
21	248	6.8						
22	234	6.2						
23	230	5.3						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 74*

San Juan, Puerto Rico (18.4°N, 66.1°W) May 1941

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		6.8						
01		6.1						
02		6.0						
03		6.2						
04		5.7						
05		6.0						
06		5.1						
07		4.8						
08		4.4						
09		4.3						
10		5.2				2.4		
11		5.8		3.9		3.5		
12		6.2		4.3		3.7		
13		6.4		4.5		3.8		
14		7.1		4.6		4.0		
15		8.1		4.7		4.1		
16		9.2		4.8		4.1		
17		9.6		4.6		4.1		
18		9.9		4.6		4.1		
19		9.8		4.4		3.8		
20		9.7		4.2		3.7		
21		9.7		3.9		3.6		
22		8.4				2.4		
23		7.3						

Time: 0.0°W.
*Average values.

Table 75*

Huancayo, Peru (12.0°S, 75.3°W) May 1941

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	242	5.5						
01	245	5.0						
02	254	4.6						
03	271	3.9						
04	290	3.6						
05	293	3.4						
06	283	4.0				1.3		
07	266	6.6	265	4.1		2.2		
08	317	8.1	244	4.6		2.7		
09	338	8.8	233	4.7		3.0		
10	368	8.4	230	4.8		3.3		
11	390	7.9	224	4.7		3.5		
12	398	7.6	223	4.8		3.6		
13	397	7.5	224	4.7		3.5		
14	386	7.6	223	4.7		3.3		
15	356	8.0	220	4.7		2.9		
16	328	8.3	245	4.5		2.6		
17	275	8.2				2.0		
18	295	7.8				1.0		
19	307	7.4						
20	288	7.4						
21	258	7.4						
22	340	6.7						
23	238	5.9						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

Table 76*

San Juan, Puerto Rico (18.4°N, 66.1°W) April 1941

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		6.3						
01		5.9						
02		5.8						
03		5.8						
04		5.8						
05		5.4						
06		5.2						
07		4.5						
08		4.1						
09		4.0						
10		4.9				2.4		
11		6.1				2.4		
12		6.7		4.2		3.8		
13		7.3		4.5		3.9		
14		8.1		4.9		4.3		
15		9.4		4.9		4.4		
16		10.5		4.9		4.3		
17		10.8		4.9		4.3		
18		10.3		4.8		4.2		
19		10.4		4.6		4.1		
20		9.9		4.2		3.9		
21		9.4				3.6		
22		9.1				2.4		
23		7.4						

Time: 0.0°.
*Average values.

Table 77*

Huancayo, Peru (12.0°S, 75.3°W) April 1941

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	239	7.9						
01	235	7.4						
02	241	6.0						
03	256	4.7						
04	263	3.8						
05	278	3.3						
06	280	4.6				1.4		
07	261	7.6	259	4.4		2.4		
08	295	9.2	243	4.7		2.8		
09	323	9.6	237	4.8		3.3		
10	343	9.4	232	4.9		3.6		
11	363	8.8	228	4.9		3.9		
12	365	8.6	227	4.9		3.9		
13	355	9.0	227	4.8		3.8		
14	337	9.5	225	4.8		3.7		
15	322	9.9	219	4.7		3.1		
16	279	9.9	235	4.6		2.8		
17	273	9.8				2.2		
18	297	9.5				1.1		
19	342	8.5						
20	322	8.4						
21	281	8.7						
22	247	8.5						
23	244	7.9						

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
*Average values.

TABLE 78

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'F2 (Characteristic), km (Unit), November (Month), 1946

Observed at Washington, D.C.

Lat 39.0° N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M.S.L., J.L.S.

Calculated by: A.M.K., B.W.D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	280	250	240	260	250	260	(250)	240	230	230	230	250	250	[260]C	240	230	220	230	220	240	220	250	240	230
2	250	250	320	(320)	320	270	250	230	230	220	230	240	240	250	240	230	230	210	220	210	230	250	260	270
3	270	250	250	250	260	240	230	230	220	220	230	250	260	240	240	240	230	210	220	230	230	250	260	250
4	250	270	270	260	260	250	230	230	230	220	230	230	250	240	240	220	220	220	220	230	240	(250)	240	250
5	250	270	300	290	260	240	230	240	230	230	220	250	[240]C	230	230	[240]E	240	220	230	220	240	270	260	260
6	270	260	240	280	290	270	260	230	220	(260)	270	250	230	230	220	230	230	230	220	240	230	230	250	240
7	260	250	260	250	250	240	250	230	230	230	230	220	[230]E	260	230	230	210	210	210	230	230	240	250	240
8	240	260	250	260	260	260	240	220	230	220	220	240	220	220	250	230	230	220	[230]A	250	230	270	260	250
9	240	240	270	260	250	250	280	240	230	220	220	240	240	220	220	230	230	220	[230]C	230	220	250	270	[280]A
10	280	260	240	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	290	250	230	250	330	300	240	(220)	(220)	220	240	250	240	230	230	220	220	210	240	240	250	270	260
12	320	360	330	260	230	280	280	250	230	220	230	240	250	220	230	230	230	220	240	230	230	240	240	260
13	250	240	250	250	250	250	250	220	230	230	220	230	250	250	240	230	220	220	230	230	240	240	250	250
14	230	250	270	270	250	260	250	240	220	230	240	250	240	220	240	240	220	220	220	240	240	240	240	260
15	260	270	270	250	260	250	(310)	250	230	230	220	230	230	240	250	230	240	230	230	230	240	230	250	260
16	270	210	270	280	290	300	290	260	250	250	260	240	250	230	240	230	230	[230]C	210	230	240	250	270	260
17	300	290	280	250	250	(250)	(270)	230	230	230	250	260	220	240	220	230	230	[230]C	230	250	230	240	250	250
18	250	260	270	270	260	250	260	240	220	230	220	220	220	[220]C	220	230	[230]E	220	[230]E	240	240	260	270	250
19	260	250	270	280	260	C	C	C	C	C	230	230	220	230	230	230	230	220	230	230	230	240	230	240
20	260	(290)	300	270	250	(250)	230	230	230	220	230	230	250	250	230	230	230	220	220	220	240	250	260	260
21	300	300	280	280	260	240	(260)	230	230	[210]C	220	[240]C	240	230	230	240	240	220	240	220	230	250	260	250
22	270	280	(290)	280	(270)	[290]C	(290)	250	[240]C	[230]C	220	220	220	230	230	230	230	210	230	220	230	250	260	250
23	(250)	270	290	280	260	240	260	250	230	220	220	230	220	240	230	230	230	[220]C	220	220	240	250	240	240
24	270	(300)	(300)	(360)	(320)	(270)	300	260	250	230	230	220	220	230	220	220	230	[230]C	230	220	220	240	260	270
25	260	260	260	240	[230]C	240	270	250	230	230	230	220	220	220	230	230	220	210	(210)	230	210	250	260	260
26	270	280	280	250	230	220	(260)	230	220	230	210	[220]C	230	[230]C	[230]E	230	220	210	220	220	(220)	250	240	240
27	260	260	270	250	240	(230)	(240)	(250)	230	220	210	230	210	220	230	230	220	220	210	230	220	240	240	260
28	(270)	270	260	240	(250)	(240)	(280)	240	230	230	230	220	220	220	230	230	230	220	(220)	230	220	230	(250)	260
29	(270)	270	(280)	270	240	230	230	230	230	230	220	230	220	220	220	230	220	210	210	220	230	(240)	(250)	250
30	280	(280)	270	250	250	230	(250)	230	220	220	230	220	230	230	240	[230]C	[210]C	[210]E	[220]E	[230]C	[230]E	[250]C	[250]E	[270]C
31																								
Median	260	265	270	260	250	250	260	240	230	230	230	230	230	230	230	230	230	220	220	230	230	250	250	250
Count	29	30	30	29	29	28	28	28	28	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29

Sweep 0.75 Mc to 11.5 Mc in 3.4 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1948 O - 702518

TABLE 79

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), November (Month), 1948

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M.S.L., J.L.S.

Calculated by: A.M.K., B.W.D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	6.2	(6.0)J	5.5	(5.0)	4.8	4.5F	3.2F	[6.9]c	[9.8]c	(10.5)	(11.8)	(12.3)	(13.4)	C	C	(13.4)	(12.0)	C	C	(7.0)	[6.7]c	(6.4)J	(5.6)J	4.8
2	(4.4)	(4.0)J	2.1F	(2.7)	2.9	3.3F	(3.8)JF	7.2	(9.4)J	10.2	11.0	D	D	D	D	D	C	C	C	(8.4)	6.5	5.5	(5.3)	(5.5)J
3	(5.5)J	5.1	5.0	(4.0)J	(3.7)F	3.5F	4.2	[6.1]c	(9.0)J	C	C	C	D	D	D	C	C	C	C	C	6.4	5.5	5.2	5.1
4	4.7	4.3	4.2	4.0	4.0	4.1	3.6	6.7	9.0	(10.0)	C	C	D	D	D	D	C	C	C	(8.0)	[7.3]c	(6.4)J	(5.6)J	5.5
5	5.1	4.3	4.3F	4.4F	5.0	(4.1)J	4.2	(7.0)	10.0	C	C	(11.1)	(12.5)	(11.4)	C	C	C	C	C	C	C	C	6.7	[6.3]c
6	(5.8)	(5.6)J	(5.6)	5.1	5.0	5.0	4.8	C	C	(10.4)	11.5	(11.5)	D	D	D	D	C	C	C	C	(7.2)	6.4	(6.4)	5.5
7	5.0	4.8	4.8	4.4	4.0	3.6	3.5F	7.0	(9.6)	D	D	D	C	C	12.2	12.2	C	C	C	C	7.1	6.2	5.8	5.5
8	4.6F	(4.0)J	3.8F	(3.4)	3.3F	3.8	3.5F	7.2	10.4	10.9	11.3	11.9	12.0	12.6	12.6	12.6	C	C	(9.8)	(8.6)	6.7	6.6	6.5	(6.2)J
9	(6.1)J	5.6	5.1	5.0	4.7	3.9	4.3	7.2	(10.2)	(11.3)	12.0	12.5	13.1	13.1	13.0	12.6	[11.7]c	(10.6)J	[9.7]c	(8.7)	(7.0)	(6.7)	(5.8)J	(5.8)J
10	(6.2)J	(6.0)J	(6.0)J	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	5.3	(5.5)J	5.2	3.5	3.2	3.5	(6.6)	(9.9)	(10.4)	D	D	D	D	D	D	C	C	C	C	C	6.6	6.2	5.4
12	(5.2)	(5.0)J	5.1	(5.5)	5.0	4.7	4.6	(7.3)	(10.3)	(11.5)	(11.5)	D	D	D	D	D	C	C	C	C	7.4	(6.8)	5.5	(5.6)J
13	(5.4)J	5.2	4.9	4.6	4.2	3.8	3.7F	6.7	10.2	(11.3)	[11.4]c	(11.5)	D	D	(11.5)	(12.1)	11.6	(10.0)	[8.9]c	7.8	(6.5)	(6.2)J	(5.8)J	(5.4)
14	(5.8)J	4.5	4.4	4.3	4.0	3.6	(3.5)	6.8	9.2	11.0	11.7	(11.9)	[11.7]c	(11.3)	(11.6)	C	C	C	C	C	C	C	(5.5)	5.1
15	4.8	(4.4)J	4.3	4.2	3.6	(3.3)	3.2	6.2	(10.2)	(11.3)	(11.4)	[11.5]c	[11.5]c	(11.4)	C	C	C	C	C	C	C	C	C	(7.2)
16	(7.3)	[6.9]c	(6.4)	(6.0)J	(5.8)J	(5.4)J	(5.8)	6.8	8.0	8.2	(9.2)	[9.8]c	(10.8)J	11.1	11.3	C	C	C	(9.2)	C	C	5.2	(4.9)	(4.1)
17	(4.0)J	(4.1)J	(4.3)	4.4	(4.1)J	3.1F	3.1F	6.0	(9.3)	C	C	C	C	C	C	C	C	C	C	C	C	(6.0)J	(5.1)	5.0
18	(4.9)	(4.0)	(4.2)J	(4.2)	3.9	3.9	3.9	6.5	(9.2)	[10.8]c	[11.3]c	11.4	D	C	C	C	12.5	C	C	C	C	C	C	C
19	[5.5]c	(5.6)J	5.3	5.2	4.9	C	C	C	C	C	C	(11.5)	12.9	13.0	13.6	12.6	C	C	C	C	(7.0)	(7.5)	(6.2)J	[5.0]c
20	(4.1)J	3.9	4.5	4.8	4.8	4.6	3.7	(6.3)	(9.3)	[10.5]c	12.1	13.0	13.6	[13.5]c	12.6	12.9	C	C	C	(8.6)	[7.6]c	[6.5]c	(5.9)J	(5.6)J
21	(5.3)	(5.4)	(5.6)J	(5.6)	5.4	4.8	3.7	(5.3)	8.0	[10.0]c	12.4	13.4	14.1	12.9	12.8	C	C	C	(9.0)	[8.2]c	(7.4)	[7.0]c	[6.7]c	6.2
22	(5.5)J	4.7	3.5F	3.1F	3.1F	(3.1)	[3.8]c	6.6	[8.9]c	[11.3]c	12.8	12.7	13.0	13.5	13.5	(13.5)	C	C	C	C	7.3	6.5	(6.3)	(5.6)J
23	5.0	4.7	4.4	4.3	4.4	3.9	(3.4)	5.9	(9.5)	11.4	C	C	C	[11.4]c	C	C	11.5	[10.3]c	(8.3)	(7.5)	(5.4)	(5.4)	4.6	4.4
24	(3.6)J	3.5	3.3	2.9	3.1	3.1	3.1	5.0	(7.2)	8.8	11.2	(11.5)	C	C	13.0	12.5	11.5	11.2	[9.8]c	8.0	6.6	(5.5)	(5.5)	5.3
25	5.3	5.0	5.1	5.3	4.5	3.9	3.8	[5.9]c	(9.3)	(11.0)	C	C	C	12.7	13.0	12.8	C	C	C	C	C	(5.6)J	5.3	4.9
26	5.0	5.0	5.2	(5.6)	5.2	4.3	(4.3)	(5.4)	[9.3]c	[11.7]c	12.4	12.2	12.4	12.5	12.5	12.4	(12.0)	(10.3)	C	C	C	C	C	4.9
27	(4.5)	4.4	(4.4)	(4.2)J	(4.1)J	3.6	3.2	(5.4)	9.0	10.6	11.0	11.9	11.3	(11.5)	11.8	11.5	(12.0)	(10.9)	9.4	[7.4]c	(5.6)	(5.2)	4.5	4.3
28	4.3	4.3	4.4	4.4	4.0	(3.5)	[3.4]c	(5.3)	[8.3]	(9.9)	11.0	11.3	11.7	(12.0)	12.5	12.1	11.6	(10.4)	C	C	C	(5.6)	4.3	(4.0)J
29	(3.9)J	(3.9)J	(4.1)J	4.5	4.6	4.0	[3.7]c	(5.2)	8.4	(9.6)	10.3	11.3	11.7	(11.4)	11.8	11.6	11.1	C	C	C	(5.2)J	4.6	(4.2)J	(4.1)J
30	(3.9)J	(4.0)J	4.3	4.7	4.5	4.0	3.8	(5.2)	(8.5)	10.2	(10.5)	[11.2]c	11.0	11.2	[11.2]c	(11.1)	11.0	C	C	C	[4.9]c	[5.4]c	[4.2]c	[3.8]J
31																								
Median	(5.0)	4.7	4.4	4.4	4.2	3.8	3.7	6.5	(9.3)	(10.7)	11.4	(11.5)	(12.2)	(12.0)	12.5	12.5	11.6	(10.4)	(9.3)	(8.0)	(6.7)	(6.2)	(5.6)	5.4
Count	29	30	30	29	29	28	28	27	27	24	20	20	16	17	17	15	11	7	8	11	19	24	26	28

D INDICATES VALUES GREATER THAN 11.5 Mc, THE UPPER LIMIT OF THE AUTOMATIC RECORDER. VALUES IN EXCESS OF 11.5 Mc, OBTAINED BY MANUAL OPERATION OF AUXILIARY RECORDER

Sweep ____ Mc to ____ Mc in ____ min

Manual ☐ Automatic ☐

U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 705518

TABLE 80

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), November, 1946 (Month)

Observed at Washington, D. C.

Lat. 39.0° N, Long. 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M.S.L., J.L.S.

Calculated by: A.M.K., B.W.D.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	[6.2]C	[5.8]C	[5.2]C	4.9	(4.3)	(3.2)F	5.1	[8.5]C	(10.4)	[11.2]C	[12.]C	[12.8]C	C	C	C	[12.8]C	C	C	C	[6.8]C	[6.6]C	[6.0]C	[5.2]C	[4.5]C
2	[4.0]C	[3.7]C	(2.3)	(2.7)	(3.4)J	(3.4)	4.9	[8.3]C	[9.8]C	[10.6]C	C	D	D	D	D	D	C	C	C	[7.4]C	[6.0]C	[5.4]C	[5.4]C	[5.4]C
3	[5.3]C	[5.1]C	[4.5]C	3.8F	3.6F	3.6F	(5.3)	[7.4]C	C	C	C	C	C	D	D	C	C	C	C	C	[5.9]C	[5.3]C	[5.2]C	[4.9]C
4	[4.6]C	[4.3]C	[4.1]C	4.0	4.1	4.0	5.0	[8.0]C	10.1	C	C	C	D	D	D	D	C	C	C	[7.7]C	[6.8]C	[6.0]C	[5.6]C	[5.2]C
5	[4.5]C	[4.3]C	[4.3]C	4.6	4.4	3.9F	5.1	[8.5]C	C	C	C	[12.3]C	[12.3]C	C	C	C	C	C	C	C	C	C	[6.5]C	[6.1]C
6	[5.7]C	[5.6]C	[5.3]C	5.1	5.0	5.0	C	C	C	[11.0]C	[11.5]C	C	D	D	D	D	C	C	C	C	[6.8]C	[6.4]C	[6.0]C	[5.3]C
7	4.9	[4.8]C	[4.7]C	(4.2)J	3.7	(3.5)	5.0	[8.5]C	D	D	D	D	C	C	[12.2]C	C	C	C	C	C	[6.6]C	[6.0]C	[5.7]C	[5.0]C
8	(4.1)J	[3.9]C	[3.6]C	(3.4)	3.3F	3.8	5.1	[9.0]C	(11.0)	(11.4)	[11.6]C	[12.0]C	[12.3]C	[12.6]C	[12.6]C	C	C	C	[9.2]C	[7.9]C	[6.6]C	[6.6]C	[6.3]C	[6.1]C
9	5.7	[5.3]C	[5.0]C	4.9	4.2	3.8	5.1	[8.9]C	[10.8]C	[11.7]C	[12.3]C	[12.7]C	[13.]C	[13.]C	[12.8]C	[12.2]C	[11.]C	[10.2]C	[9.2]C	[8.0]C	[6.8]C	[6.3]C	[5.8]C	[6.0]
10	(6.0)J	[6.0]C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	(5.5)J	(5.5)J	[4.3]C	3.2	3.2	4.6	[8.0]C	[10.2]C	C	D	D	D	D	D	D	C	C	C	C	C	[6.4]C	[5.8]C	[5.3]C
12	5.0	[5.1]C	[5.3]C	5.2	4.8	4.5	5.3	[9.1]C	(11.5)	[11.5]C	C	D	D	D	D	D	C	C	C	C	[7.1]C	[6.1]C	[5.6]C	[5.6]C
13	[5.3]C	[5.1]C	[4.8]C	4.5	3.9	3.7	5.0	[8.5]C	(11.0)	[11.3]C	[11.5]C	C	D	D	[11.8]C	[11.9]C	[11.0]C	[9.5]C	[8.3]C	[7.1]C	[6.3]C	[6.0]C	[5.6]C	[5.3]C
14	[4.7]C	[4.5]C	[4.3]C	4.3	3.8	3.6	4.7	[8.0]C	10.7	[11.3]C	[11.8]C	[11.8]C	[11.5]C	[11.4]C	C	C	C	C	C	C	C	C	[5.3]C	[5.0]C
15	[4.6]C	[4.4]C	[4.3]C	[3.9]C	[3.5]C	3.0	4.4	[8.5]C	[10.7]C	[11.4]C	[11.5]C	[11.5]C	[11.5]C	C	C	C	C	C	C	C	C	C	C	[7.3]C
16	[7.1]C	[6.7]C	[6.2]C	(5.8)J	(5.7)J	(5.8)J	[6.3]C	[7.4]C	[8.1]C	[8.7]C	[9.5]C	[10.3]C	[11.0]C	[11.2]C	C	C	C	C	C	C	C	[5.1]C	[4.5]C	[4.2]C
17	[4.0]C	[4.2]C	[4.3]C	[4.3]C	[3.6]C	[3.1]C	[4.0]C	[7.0]C	C	C	C	C	C	C	C	C	C	C	C	C	C	[5.6]C	[5.0]C	[4.9]C
18	[4.2]C	[4.1]C	[4.2]C	(4.0)J	4.0	3.8	4.6	[8.0]C	10.5	[11.2]C	[11.4]C	C	D	C	C	C	C	C	C	C	C	C	C	C
19	[5.7]C	[5.5]C	[5.3]C	(5.3)	C	C	C	C	C	C	C	[12.3]C	[13.0]C	[13.3]C	[13.1]C	C	C	C	C	C	[7.2]C	[7.0]C	[5.6]C	[4.5]C
20	[4.0]C	[4.2]C	[4.7]C	4.9	4.7	4.2	4.7	[8.3]C	(10.0)	[11.6]C	[12.6]C	[13.3]C	[13.6]C	[13.2]C	[12.8]C	C	C	C	C	[8.2]C	[7.0]C	[6.2]C	[5.7]C	[5.4]C
21	[5.5]C	[5.5]C	[5.6]C	(5.6)	5.3	4.1	4.5	[6.5]C	[8.9]C	[11.3]C	[12.9]C	[13.8]C	[13.7]C	[12.8]C	C	C	C	C	[8.6]C	[7.8]C	[7.2]C	[6.9]C	[6.5]C	[5.5]C
22	[5.0]C	[4.1]C	[3.3]C	3.1F	3.0F	(3.1)	(4.5)	[7.5]C	[10.1]C	[12.3]C	[12.7]C	[12.9]C	[13.3]C	[13.5]C	[13.5]C	C	C	C	C	C	[7.0]C	[6.4]C	[6.0]C	[5.2]C
23	[4.8]C	[4.5]C	[4.3]C	4.3	4.1	3.6	3.4	[8.0]C	[10.7]C	C	C	C	(11.5)	(11.4)	C	C	[11.0]C	[9.5]C	[8.0]C	[6.5]C	[5.4]C	[5.0]C	[4.5]C	[3.9]C
24	[3.6]C	[3.4]C	(3.2)	3.0	[3.1]C	3.0	4.0	[6.0]C	[7.9]C	[10.0]C	[11.4]C	C	C	C	[12.7]C	[12.0]C	[11.4]C	[10.5]C	[9.0]C	[7.3]C	[6.0]C	[5.5]C	[5.3]C	[5.3]C
25	[5.2]C	[5.0]C	5.2	5.0	4.2	3.9	(4.5)	[7.5]C	[10.2]C	C	C	C	C	[12.9]C	[12.9]C	C	C	C	C	C	C	[5.4]C	[5.1]C	[5.0]C
26	[5.0]C	[5.1]C	[5.4]C	(5.3)	4.7	[4.3]C	[5.2]C	[7.5]C	[10.7]C	[12.1]C	[12.3]C	[12.3]C	[12.5]C	[12.5]C	[12.4]C	[12.2]C	[11.5]C	C	C	C	C	C	C	[4.7]C
27	[4.4]C	[4.4]C	[4.3]C	(4.2)J	3.8	[3.4]C	[3.7]C	[7.0]C	[10.0]C	[10.8]C	[11.5]C	[11.7]C	[11.5]C	[11.7]C	[11.7]C	[11.7]C	[11.5]C	[10.3]C	[8.4]C	[6.2]C	[5.3]C	[4.9]C	[4.4]C	[4.3]C
28	[4.3]C	[4.4]C	4.6	(4.1)J	(3.9)	(3.3)	(3.7)J	[7.0]C	[9.1]C	[10.5]C	[11.2]C	[11.5]C	[11.9]C	[12.3]C	[12.3]C	[11.9]C	[11.0]C	C	C	C	C	[4.7]C	[4.1]C	[4.0]C
29	[3.9]C	[4.0]C	[4.3]C	4.6	4.4	(3.7)	[4.1]C	[6.6]C	[9.1]C	[10.0]C	[10.8]C	[11.6]C	[11.6]C	[11.6]C	[11.8]C	[11.4]C	C	C	C	C	[4.9]C	[4.4]C	[4.2]C	[4.0]C
30	[3.9]C	[4.1]C	4.6	4.5	4.3	[3.9]C	(4.0)	[6.5]C	[9.4]C	[10.4]C	11.0	(11.2)	11.0	[11.2]C	[11.2]C	[11.1]C	C	C	C	[5.0]C	[4.7]C	[4.4]C	[3.9]C	[3.8]C
31																								
Median	(4.8)	(4.5)	(4.6)	4.3	4.0	3.7	4.7	(8.0)	(10.2)	(11.2)	(11.5)	(12.2)	(12.1)	(12.5)	(12.5)	(11.9)	(11.1)	(10.2)	(8.6)	(7.4)	(6.6)	(6.0)	(5.5)	(5.1)
Count	29	30	29	29	28	28	27	27	23	20	18	16	16	15	14	9	7	5	7	12	19	24	26	28

D INDICATES VALUES GREATER THAN 11.5 Mc, THE UPPER LIMIT OF THE AUTOMATIC RECORDER VALUES IN EXCESS OF 11.5 Mc, OBTAINED BY MANUAL OPERATION OF AUXILIARY RECORDER.

Sweep____ Mc to____ Mc In____ min

Manual ☐ Automatic ☐

U. S. GOVERNMENT PRINTING OFFICE: 1948 O - 705519

TABLE 81

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), km (Unit), November (Month), 1946

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., J. L. S.

Calculated by: A. M. K., B. W. D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1										200	220	220	[220]C	[220]C	220	220										
2										210	200	190	210	230	220											
3											210	200	200	[210]C	220	230										
4													210	200	210											
5												220	210													
6										210	230	220														
7														220												
8												200			210											
9												220	210													
10										C	C	C	C	C	C	C										
11												220	220	210												
12												210	230													
13												220	210	220												
14											210	220	220													
15														230												
16										220	220		(220)													
17											190M	230														
18																										
19												210														
20													230	220												
21																										
22																										
23																										
24																										
25																										
26																										
27																										
28																										
29																										
30																										
31																										
Median											210	220	215	220	220											
Count										4	7	15	17	9	5	2										

Sweep 0.75 Mc to 11.5 Mc in 3.4 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE: 1948 O - 703518

TABLE 82

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Form adopted June 1946

f°F1 (Characteristic), Mc (Unit), November (Month), 1946

Observed at Washington, D. C.

Lat. 39.0° N, Long. 77.5° W — 75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M.S.L., J.L.S.

Calculated by: A.M.K., B.W.D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1										L	L	L	L	C	L	L										
2										L	L	(4.0)	L	L	L											
3											L	L	L	C	L	L										
4													L	L	L											
5												L	L													
6										L	L	L														
7														L												
8												L			L											
9												L	L													
10										C	C	C	C	C	C	C										
11												L	L	L												
12												L	L													
13												L	L	L												
14											L	L	(4.4)													
15														L												
16										L	L		L													
17											LH	L														
18																										
19												L														
20													L	L												
21																										
22																										
23																										
24																										
25																										
26																										
27																										
28																										
29																										
30																										
31																										
Median																										
Count																										

Sweep 0.75 Mc to 11.5 Mc in 3.4 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 728519

TABLE 33

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic) km (Unit) November (Month), 1946

National Bureau Of Standards (Institution)

Observed at Washington, D. C.

Lat 39.0° N, Long 77.5° W 75° W Mean Time

Scaled by: M. S. L., J. L. S.

Calculated by: A. M. K., B. W. D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								120	100	100	110	110	110	[110]c	110	110	120	c						
2								110	110	110	100	100	110	110	110	110	110	c						
3								(120)	120	110	110	110	110	110	110	110	120H	c						
4								cH	100	110H	110H	100H	110	100	110	110	110	c						
5								110	100	100	100H	100	100	110	100	[100]c	100	c						
6								110	100	100	100	110	110	100	100	110	110	110						
7								110	110	110	110	100	[100]c	100	100	100	120	c						
8								c	100	110	110	100	100	100	110	110	110H	110						
9								c	100	100	100	100	100	100	100	100	100	100						
10								c	c	c	c	c	c	c	c	c	c	c						
11								110	100	100	100H	100H	100	110	100	120	100	100						
12								120	110H	110H	100	100	100	100	100	100	100	100						
13								c	110H	110	110	110	100	100	100	100	100	100						
14								c	110	110	100	100	100	100	100	100	100	100						
15								c	120	110	110	110	110	110	110	120	120H	c						
16								c	110	120	110	110	110	110	120	120	120	c						
17								c	110H	110	110	110	110	110	120	110	100	c						
18								c	100	100	100	110H	110	[110]c	100	110	c	c						
19								c	c	c	110H	110	100	100	110	110	120	c						
20								c	110H	110H	100	100	100	100	100	100	120	c						
21								c	110	[110]c	100	100	[100]c	100	100	100	100	110						
22								(110)	[110]c	[110]c	110	100	100	100	(100)	(100)	(100)	(100)						
23								c	110	110	100	100	100	100	100	110	120	c						
24								c	110	110	100	110	100	110	100	110	110	c						
25								c	100	100H	100	100	110	100	110	110	110H	c						
26								c	c	110	100	[100]c	100	[100]c	[100]c	100	100							
27								c	110H	110	100	100	100	100	110	110	(120)	c						
28								c	100	(100)	100H	100	110	110	110H	110	c							
29								c	(110)	110	110	110H	110	100	100	110H	100	c						
30								c	100	100	110	110	110	110	110	[120]c	c							
31																								
Median								110	110	110	100	100	100	100	120	110	110	100						
Count								9	29	28	29	29	29	29	7	28	26	9						

Sweep 0.75 Mc to 11 Mc in 3.4 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1948 O 70359

TABLE 84

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

f°E (Characteristic), Mc (Unit), November (Month), 1946

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., J. L. S.

Calculated by: A. M. K., B. W. D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								(2.0)	(2.5)	(2.8)	C	C	C	C	3.2	(2.8)	2.4	C						
2								1.9	2.5	2.8	3.0	C	C	C	3.2	2.7	2.3	C						
3								2.0	2.5	(2.9)	C	C	C	C	C	C	(2.1)^{H}	1.6						
4								(1.6)^{H}	(2.5)	2.9^{H}	(3.3)^{H}	3.4^{H}	3.5	3.5	(3.3)	(2.9)	2.4	C						
5								A	(2.6)	(3.0)	3.3^{H}	3.4	3.5	3.5	(3.2)	[2.8]^{C}	(2.3)	C						
6								2.0	[2.7]^{C}	3.0	3.3	3.5	[3.6]^{A}	[3.5]^{C}	3.3	(2.9)	A	A						
7								[2.0]^{A}	(2.4)	2.9	3.3	(3.4)	[3.5]^{C}	(3.4)	[3.2]^{C}	(2.9)	2.3	C						
8								1.9	2.7	3.1	3.4	3.5	3.6	3.5	3.3	(2.9)	2.1^{H}	A						
9								1.9	2.5	[2.9]^{A}	[3.3]^{A}	3.5	3.6	[3.6]^{A}	(3.4)	2.9	A	A						
10								C	C	C	C	C	C	C	C	C	C	C						
11								A	[2.4]^{A}	[2.1]^{A}	3.3^{H}	3.4^{H}	3.5	3.5	(3.3)	2.9	(2.4)	A						
12								(1.9)	2.3^{H}	3.0^{H}	3.4	3.5	3.5	3.5	3.4	3.0	2.3	A						
13								1.9	2.2^{H}	3.0	3.3	3.6	(3.5)	3.5	A	C	(2.4)	A						
14								1.9	2.5	2.9	3.3	(3.5)	[3.5]^{A}	3.4	C	C	C	A						
15								(1.9)	2.5	[3.0]^{A}	(3.4)	[3.6]^{A}	[3.5]^{A}	3.4	[3.1]^{A}	[2.7]^{C}	2.2^{H}	C						
16								C	A	C	(3.4)	C	C	C	C	C	2.3	C						
17								C	2.2^{H}	(3.0)	[3.2]^{C}	(3.5)	[3.5]^{C}	(3.4)	[3.3]^{C}	(2.9)	2.2	C						
18								1.8	2.5	3.0	3.3	3.4^{H}	3.5	[3.4]^{C}	[3.2]^{C}	2.8	C	C						
19								C	C	C	3.2^{H}	3.3	3.5	3.5	3.3	2.7	(2.1)	C						
20								C	2.1^{H}	2.9^{H}	[3.2]^{A}	3.4	[3.5]^{A}	(3.4)	3.2	2.8	A	C						
21								1.9	(2.3)	[3.0]^{C}	3.3	3.5	[3.7]^{C}	3.5	3.3	2.8	A	C						
22								A	C	C	3.3	3.5	(3.7)	3.5	3.3	A	C	C						
23								A	2.4	3.1	3.3	3.4	[3.3]^{A}	3.3	3.3	2.8	2.2	C						
24								C	(2.5)	[2.9]^{A}	3.2	3.5	(3.5)	[3.4]^{C}	3.2	2.7	(2.3)	C						
25								C	(2.3)	2.8^{H}	3.1	3.4	3.5	3.4	(3.1)	(2.7)	1.8^{H}	C						
26								C	C	C	3.2	[3.5]^{C}	(3.6)	C	C	A	A							
27								C	2.2^{H}	2.8	3.2	3.4	(3.5)	3.3	(3.1)	2.6	2.2	C						
28								C	A	2.8	3.1^{H}	3.3	3.4	3.3	(3.1)^{H}	2.7	(2.0)							
29								C	A	(2.7)	(3.0)	3.2^{H}	3.3	(3.3)	(3.1)	2.7^{H}	(2.2)	C						
30								C	A	(2.7)	3.2	(3.3)	3.5	3.2	2.8	[2.1]^{C}	C							
31																								
Median								1.9	2.5	2.9	3.3	3.4	(3.5)	3.4	3.2	2.8	2.2							
Count								14	22	25	27	25	25	24	24	23	20							

Sweep 0.75 Mc to 11.5 Mc in 3.4 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1948 O - 703519

TABLE 85

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1948

IONOSPHERIC DATA

Es (Characteristic), Mc, km (Unit), November (Month), 1946

Observed at Washington, D. C.

Lat 39.0° N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., J. L. S.

Calculated by: A. M. K., B. W. D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C					C	5.2/100	3.7/100	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C			(2.3)/110			C	C	C	C	C	C	C	C	C	2.4/130	C	C	C	2.7/100	2.7/100	C	(3.5)/110
3	3.6/120	1.9/110	C					C	C	C	C	C	C	C	C	C	2.4/100	C	C	C	C	C	C	C
4	C	C	C					2.0/130	3.4/100	C	C	C	3.9/120	C	3.5/100	C	C	C	C	C	C	3.4/100	2.8/100	C
5	C	C	C				3.9/110	2.7/110	C	3.5/100	C	C	C	C	C	C	4.1/100	C	(2.5)/110	(2.3)/100	2.3/100	2.5/100	C	C
6	C	C	C				2.7/110	C	4.1/100	3.6/100	2.8/100	C	4.0/120	3.8/110	3.9/110	C	2.5/110	(4.0)/110	(2.4)/110	(2.2)/110	2.3/110	C	C	C
7		C	C			2.7/110	4.9/110	3.1/110	3.6/100	C	C	C	C	C		C	C	C	(2.4)/110	2.4/110	C	C	C	C
8		C	C					(3.5)/100				C	C	C	C	C	C	2.8/100	6.8/100	5.0/100	(3.4)/100	3.4/110	2.4/110	C
9	1.7/100	2.4/120	2.7/110	2.7/100	3.6/100	4.0/100		C	C	4.0/100	4.2/100	C	C	5.2/110	5.1/110	4.2/100	5.1/100 H	3.7/100	C	2.4/120	C	1.9/120	3.5/110	4.0/110
10	2.8/110	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	1.8/110	3.1/100		2.0/110	4.2/110	3.3/100	2.7/110 H	5.2/100	5.5/100	C	C	5.0/110	5.2/100	4.0/100	5.1/90	(3.8)/100	(2.9)/100	2.3/100	C	C	C	C	C
12		2.6/110	C	2.3/100	2.4/100	2.4/100		C		C	C	C	C	C	C	C	2.7/100	2.7/100	C 110	C	C	C	C	C
13	C	C	C					1.9/120		5.2/130	C	C	4.0/120	C	3.5/120	C	C	2.4/100	3.8/100	2.9/110	C	C	C	C
14	2.7/110	C	C					C		C	C	C	4.1/100	C	C	3.6/90	C	(3.5)/110	2.1/100	C	C	C	C	C
15	C	C	C	C	C			2.1/110	2.7/100	3.9/110	4.8/120	3.8/120	3.6/120	C	5.4/100	C	C	C	4.3/120	C	C	C	C	C
16	C	C	2.6/130	2.5/120	3.7/120	(3.7)/100	(4.0)/110	3.2/100	3.5/110	C	3.4/120	C	C	C	3.5/100	3.5/100	C	C	C	C	C	C	C	C
17	C	2.7/120	2.7/120	3.2/130	3.5/130	4.6/110	3.1/100	C	3.5/100	C	C	C	3.5/100	C	C	C	3.4/110	C	3.5/110	5.2/110	C	C	C	C
18	C	C	2.7/110	2.8/110	2.7/120			5.0/100		3.9/120	3.5/130	C	3.9/120	C	C	C	C	C	C	(2.4)/100	C	C	C	C
19	C	C	C		C	C	C	C	C	C	C	4.0/110	C	3.8/100	C	3.1/130	2.5/120	2.4/100	C	C	C	C	C	C
20	C	2.2/100	2.5/100	3.8/100	3.3/100	3.9/110		C		C	5.0/100	C	C	C	3.5/130	3.1/120	C	2.1/110	2.4/110	C	2.9/110	3.1/100	3.5/100	2.7/110
21	2.7/100	2.8/100	2.7/100	2.5/100				C		C	C	C	C	C	C	C	2.7/100	2.7/100	C	C	C	C	C	C
22	2.4/100	C	C		2.4/100			2.8/120	C	C	C	C	C	C	C	(3.5)/100	C	(3.5)/100	2.6/100	C	2.7/120	3.2/110	2.3/110	2.4/100
23	2.7/100	2.7/100	C		2.6/100	2.7/100	3.6/110	4.1/110	4.1/110	C	C	3.5/100	4.0/100	3.5/130	3.4/130	3.5/100	2.6/100	C	2.4/110	2.7/100	3.5/110	2.9/110	2.8/100	
24	2.7/100	C			C	3.2/100	4.3/110	3.0/100	C	4.0/120	3.8/100	C	C	C	C	C	C	C	C	1.7/120	1.9/100	C	C	2.4/110
25	2.5/100	2.4/100	2.7/100	2.4/110	3.8/100	3.2/100	(2.8)/100	C	4.0/130	C	3.9/160	C	C	C	C	C	C	2.8/100	C	C	C	2.7/100	3.0/110	C
26	2.6/100	3.2/110	C			1.6/110	C	C	4.0/100	C	3.6/140	C	3.6/100	C	C	3.1/100	2.7/100	(3.5)/100	C	3.5/110	(5.3)/110	3.2/100	3.0/100	3.3/100
27	2.8/100	(2.7)/100	(2.5)/100	(2.8)/100		C	(2.9)/100	(2.9)/110	(5.1)/100	C	C	C	C	3.7/120	C	2.7/160	2.6/100	2.3/110	C	C	(2.7)/90	(2.4)/100	(2.4)/100	(2.7)/100
28	2.7/100	C		(2.4)/110		(2.9)/(130)		(2.4)/(110)	4.0/110	4.5/110	C	C	C	C	C	2.8/140	(2.4)/100	C	C	C	C	C	C.	C
29	2.4/110	C	C		2.7/100			C	2.7/100	3.0/130	C	C	C	C	C	C	3.5/100	3.5/100	C	C	C	C	C	2.5/100
30	C	2.4/100	(2.5)/100		2.4/110	C		4.0/120	(2.9)/100	(3.5)/130	4.3/120		5.1/110	3.6/130	2.3/130	3.6/110	C	C	C	C	C	C	C	C
31																								
Median	2.6	2.5	2.6	**	2.0	**	**	2.9	3.4	3.9	3.8	*	4.0	3.8	3.5	3.5	2.7	2.8	2.4	2.4	2.7	2.9	2.8	2.7
Count	16	12	14	28	26	26	27	15	22	13	11	4	11	7	11	12	15	15	12	11	10	11	9	9

Sweep 0.75 Mc to 11.5 Mc in 3.4 min

Manual ☐ Automatic ☒

** MEDIAN fE_s LESS THAN LOWER FREQUENCY LIMIT OF RECORDER

* INSUFFICIENT DATA FOR COMPUTING MEDIAN VALUE

U. S. GOVERNMENT PRINTING OFFICE, 1948 O - 702518

TABLE 86

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

F2-MI500 (Characteristic), (Unit) November (Month), 1946

Observed at Washington, D. C.

Lat. 39.0°N, Long. 77.5° W

National Bureau Of Standards (Institution)

Scaled by: M. S. L., J. L. S.

Calculated by: A. M. K., B. W. D.

75° W Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.7	(1.8)J	1.8	(1.9)	1.7	1.9F	1.7F	C	C	(2.2)	C	C	C	C	C	C	2.1	C	C	(2.0)	C	(2.0)J	(2.0)J	2.1
2	(1.9)	(1.9)J	1.8F	(1.6)	1.7	1.8F	(1.8)JF	2.2	(2.2)J	2.2	2.0	D	D	D	D	D	C	C	C	(1.9)	2.0	1.8	(1.9)	(1.9)J
3	(1.8)J	2.0	2.0	(2.0)F	(1.8)F	1.9F	2.0	C	(2.3)J	C	C	C	C	D	D	C	C	C	C	C	2.0	1.9	1.9	2.0
4	2.0	1.9	1.8	1.9	1.9	1.9	1.9	2.2	2.2	(2.2)	C	C	D	D	D	D	C	C	C	(1.9)	C	(2.0)J	(2.0)J	2.0
5	2.1	1.8	1.8F	1.8F	1.8	(2.0)J	2.0	(2.2)	2.1	C	C	(2.2)	C	(2.2)	C	C	C	C	C	C	C	C	1.9	C
6	(1.8)J	(1.8)J	(1.9)	1.7	1.8	1.8	1.9	C	C	(2.2)	2.1	(2.0)	D	D	D	D	C	C	C	C	(2.2)	1.9	(2.0)	2.0
7	1.9	1.9	1.9	1.9	2.0	2.0	2.1F	2.3	(2.6)	D	D	D	C	C	C	1.8	C	C	C	C	2.0	2.1	2.0	2.0
8	1.9F	(2.0)J	2.0F	(1.9)	2.0F	1.8	2.0F	2.2	2.0	2.2	2.1	2.1	2.0	2.0	2.1	2.0	C	C	(1.9)	(2.0)	2.0	1.9	1.9	(2.0)J
9	(2.0)J	2.0	1.9	1.9	2.0	1.7	1.9	2.1	(2.2)	(2.3)	2.1	2.1	2.0	C	2.0	2.0	C	(2.0)J	C	(2.0)	(2.1)	(1.9)	(1.9)J	(1.7)J
10	(1.8)J	(1.9)J	(1.9)J	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	1.8	(2.0)J	2.1	1.8	1.6	1.7	(2.0)	(2.1)	(2.0)	D	D	D	D	D	D	C	C	C	C	C	1.9	1.8	1.6
12	(1.6)	(1.5)J	1.6	(1.8)	1.7	1.7	1.8	(2.0)	(2.1)	(2.0)	(2.2)	D	D	D	D	D	C	C	C	C	1.9	(1.9)	1.9	(1.9)J
13	(2.0)	1.9	1.9	1.9	1.9	1.9	1.9F	2.0	2.2	(2.2)	C	(2.1)	D	D	(1.9)	(1.9)	2.0	(2.1)	C	1.9	(1.9)	(1.9)J	(1.9)J	(1.9)
14	(1.9)J	1.8	1.8	1.9	1.9	1.9	(1.9)	2.1	2.1	2.0	2.0	(2.2)	C	(2.1)	(2.0)	C	C	C	C	C	C	C	(2.0)	2.0
15	1.9	(1.9)J	1.9	2.0	1.9	(1.8)	1.8	C	(2.1)	(2.1)	(1.9)	C	C	(2.0)	C	C	C	C	C	C	C	C	C	(1.8)
16	(1.9)	C	(1.8)	(1.8)J	C	(1.8)	(1.8)	(2.0)	2.1	2.1	(2.0)	C	(2.0)J	2.0	2.0	C	C	C	(1.9)	C	C	1.9	(1.8)	(1.9)
17	(1.7)J	(1.8)J	(1.9)	2.0	(2.1)J	2.0F	2.0F	2.1	(2.1)	C	C	C	C	C	C	C	C	C	C	C	C	(2.0)J	(1.9)	2.0
18	(2.0)	(1.9)	(1.9)J	(1.9)	2.0	1.9	2.1	2.2	(2.3)	C	C	2.1	D	C	C	C	2.0	C	C	C	C	C	C	C
19	C	(1.9)J	1.8	1.8	1.8	C	C	C	C	C	C	(2.1)	1.8	2.0	2.0	2.0	C	C	C	C	(1.9)	(1.9)	(2.1)J	C
20	(1.7)J	1.6	1.7	1.8	1.9	1.9	2.0	(2.0)	(2.1)	C	2.2	1.9	2.0	C	2.1	2.0	C	C	C	(2.0)	C	C	(1.9)J	(1.8)J
21	(1.8)	(1.8)	(1.9)J	(1.9)	1.9	1.8	1.8	(2.0)	2.0	C	2.0	1.9	2.0	2.0	2.0	C	C	C	(2.0)	C	(1.9)	C	C	1.9
22	(1.9)J	1.9	1.8F	1.8F	1.7F	(1.7)	C	2.1	C	C	2.1	2.1	2.0	1.9	1.9	(1.9)	C	C	C	C	2.0	1.9	(1.9)	(2.0)J
23	2.0	1.9	1.8	1.9	1.9	2.0	(1.9)	2.0	(2.3)	2.2	C	C	C	C	C	C	2.2	C	(2.0)	2.0	(2.0)	(2.1)	2.0	2.1
24	(1.9)J	1.7	1.6	1.6	1.6	1.7	1.6	2.0	(2.1)	2.1	2.1	(2.2)	C	C	2.1	2.0	2.0	2.0	C	2.0	2.1	(2.0)	(1.9)	1.9
25	1.9	1.9	2.0	2.1	2.0	1.8	1.9	C	(2.1)	(2.2)	C	C	C	2.2	2.1	2.1	C	C	C	C	C	(1.9)J	1.9	1.9
26	1.9	1.8	1.9	(2.0)	2.1	2.0	(2.1)	(2.1)	C	C	2.2	2.1	2.0	2.0	2.1	1.9	(2.1)	(2.0)	C	C	C	C	C	2.0
27	(1.9)	1.9	(1.9)	(2.0)J	(2.1)J	1.9	2.0	(2.0)	2.3	2.4	2.1	2.4	2.0	(2.1)	2.0	2.0	(1.9)	(2.0)	(2.0)	C	(2.1)	(1.9)	2.0	1.8
28	1.8	1.8	1.9	2.0	2.0	(2.0)	C	(2.1)	(2.2)	(2.2)	2.1	2.1	2.1	(1.9)	2.0	1.9	2.0	(2.2)	C	C	C	(2.0)	1.9	(1.9)J
29	(1.9)J	(1.9)J	(1.8)J	1.9	2.1	2.1	C	(2.2)	2.3	(2.3)	2.2	2.1	2.2	(2.0)	1.9	2.0	2.1	C	C	C	(2.1)J	2.0	(1.9)J	(1.9)J
30	(2.0)J	(2.0)J	1.8	1.9	2.0	1.9	1.9	(2.2)	(2.2)	2.2	(2.2)	C	2.1	2.0	C	(1.8)	(1.8)	C	C	C	C	C	C	C
31																								
Median	(1.9)	1.9	1.9	1.9	1.9	1.9	1.9	2.1	(2.2)	(2.2)	2.1	2.1	2.0	2.0	2.0	2.0	2.0	(2.0)	(2.0)	(2.0)	(2.0)	(1.9)	(1.9)	1.9
Count	28	29	30	29	28	28	25	23	24	19	17	16	12	14	15	14	10	6	5	9	15	21	24	25

Sweep ____ Mc to ____ Mc in ____ min

Manual ☐ Automatic ☐

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702519

TABLE 87

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

F2-M3000 (Characteristic) (Unit) November (Month) 19 46

Observed at Washington, D. C.

Lat 39.0° N, Long. 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., J. L. S.

Calculated by: A. M. K., B. W. D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.6	(2.7)J	2.8	(2.8)	2.6	2.8F	2.5F	C	C	(3.2)	C	C	C	C	C	C	(3.1)	C	C	(3.0)	C	(3.0)J	(3.0)J	3.1
2	(2.9)	(2.9)J	2.7F	(2.5)	2.6	2.8F	(2.7)FJ	3.2	(3.3)J	3.2	3.0	D	D	D	D	D	C	C	C	(2.9)	3.0	2.8	(2.9)	(2.8)J
3	(2.8)J	3.0	3.0	(3.0)F	(2.8)F	2.9F	3.0	C	(3.3)J	C	C	C	C	D	D	C	C	C	C	C	3.0	2.8	2.9	3.0
4	3.0	2.9	2.8	2.8	2.9	2.8	2.9	3.2	3.3	(3.2)	C	C	D	D	D	D	C	C	C	(2.9)	C	(3.0)J	(2.9)J	3.0
5	3.1	2.7	2.7F	2.8F	2.7	(3.0)J	2.9	(3.2)	3.1	C	C	(3.2)	C	(3.2)	C	C	C	C	C	C	C	C	2.9	C
6	(2.7)	(2.8)J	(2.9)	2.7	2.7	2.7	2.9	C	C	(3.2)	3.1	(3.0)	D	D	D	D	C	C	C	C	(3.2)	2.9	(3.0)	3.0
7	2.9	2.9	2.9	2.9	3.0	3.0	3.1F	3.3	(3.3)	D	D	D	C	C	C	2.7	C	C	C	C	3.0	3.1	3.0	3.0
8	2.8F	(2.9)J	3.0F	(2.9)	3.0F	2.7	3.0F	3.3	3.0	3.2	3.1	3.1	3.0	3.0	3.0	3.0	C	C	(2.8)	(3.0)	3.0	2.9	2.9	(3.0)J
9	(3.0)J	3.0	2.9	2.9	3.0	2.8	2.8	3.0	(3.3)	(3.3)	3.1	3.1	3.0	C	3.0	3.0	C	(3.0)J	C	(2.9)	(3.1)	(2.9)	(2.9)J	(2.6)J
10	(2.7)J	(2.8)J	(2.9)J	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	2.7	(3.0)J	3.1	2.7	2.5	2.6	(3.0)	(3.1)	(3.0)	D	D	D	D	D	D	C	C	C	C	C	2.8	2.8	2.5
12	(2.5)	(2.3)J	2.5	(2.7)	2.6	2.6	2.7	(2.9)	(3.1)	(3.0)	(3.3)	D	D	D	D	D	C	C	C	C	2.8	(2.9)	2.9	(2.9)J
13	(3.0)	2.9	2.9	2.8	2.9	2.9	2.9F	3.0	3.2	(3.2)	C	(3.1)	D	D	(2.9)	(2.9)	3.0	(3.1)	C	2.9	(2.9)	(2.9)J	(2.9)J	(2.9)
14	(2.9)J	2.8	2.7	2.8	2.9	2.9	(2.9)	3.1	3.1	3.0	3.0	(3.2)	C	(3.2)	(3.0)	C	C	C	C	C	C	C	(3.0)	2.9
15	2.9	(2.9)J	2.9	3.0	2.8	(2.8)	2.7	C	(3.1)	(3.2)	(2.9)	C	C	(3.0)	C	C	C	C	C	C	C	C	C	(2.7)
16	(2.8)	C	(2.7)	(2.7)J	C	(2.7)	(2.7)	(3.0)	3.1	3.1	(3.0)	C	(3.0)J	2.9	3.0	C	C	C	(2.8)	C	C	2.9	(2.8)	(2.9)
17	(2.6)J	(2.7)J	(2.8)	2.9	(3.1)J	3.0F	3.0F	3.1	(3.2)	C	C	C	C	C	C	C	C	C	C	C	C	(3.0)J	(2.9)	3.0
18	(3.0)	(2.9)	(2.9)J	(2.8)	3.0	2.9	3.1	3.2	(3.3)	C	C	3.1	D	C	C	C	3.0	C	C	C	C	C	C	C
19	C	(2.9)J	2.7	2.7	2.7	C	C	C	C	C	C	(3.1)	2.8	3.0	3.0	3.0	C	C	C	C	(2.9)	(2.9)	(3.1)J	C
20	(2.9)J	2.5	2.7	2.7	2.9	2.9	3.0	(3.0)	(3.1)	C	3.2	2.9	3.0	C	3.0	3.0	C	C	C	(2.9)	C	C	(2.9)J	(2.7)J
21	(2.8)	(2.7)	(2.8)J	(2.8)	2.8	2.7	2.8	(3.0)	3.1	C	3.0	2.9	3.0	3.0	3.0	C	C	C	(2.9)	C	(2.9)	C	C	2.9
22	(2.8)J	2.8	2.7F	2.7F	2.7F	(2.7)	C	3.1	C	C	3.1	3.1	2.9	2.8	2.8	(2.9)	C	C	C	C	3.0	2.9	(2.9)	(3.0)J
23	3.0	2.8	2.7	2.8	2.8	2.9	(2.8)	3.0	(3.3)	3.2	C	C	C	C	C	C	3.2	C	(3.0)	(3.0)	(3.0)	(3.1)	3.0	3.1
24	(2.9)J	2.7	2.5	2.5	2.5	2.6	2.5	3.0	(3.2)	3.1	3.1	(3.2)	C	C	3.2	3.0	2.9	3.0	C	3.0	3.1	(3.0)	(2.9)	2.8
25	2.8	2.9	3.0	3.1	3.0	2.7	2.9	C	(3.1)	(3.2)	C	C	C	3.3	3.1	3.1	C	C	C	C	C	(2.9)J	2.9	2.9
26	2.9	2.8	2.9	(3.0)	3.1	3.0	(3.1)	(3.1)	C	C	3.2	3.1	3.0	3.0	3.0	2.9	(3.0)	(3.0)	C	C	C	C	C	3.0
27	(2.9)	2.9	(2.9)	(3.0)J	(3.1)J	2.9	3.0	(3.0)	3.3	3.4	3.1	3.4	3.0	(3.1)	2.9	2.9	(2.8)	(3.0)	(2.9)	C	(3.1)	(2.9)	3.0	2.8
28	2.8	2.7	2.8	3.0	3.0	(2.9)	C	(3.1)	(3.2)	(3.2)	3.2	3.0	3.1	(2.9)	3.0	2.9	3.0	(3.2)	C	C	C	(2.9)	2.9	(2.9)J
29	(2.9)J	(2.9)J	(2.8)J	2.9	3.1	3.1	C	(3.2)	3.4	(3.4)	3.2	3.1	3.2	(3.0)	2.9	3.0	3.1	C	C	C	(3.1)J	3.0	(2.9)J	(2.9)J
30	(2.9)J	(2.9)J	2.8	2.9	3.0	2.8	2.9	(3.2)	(3.2)	3.2	(3.1)	C	3.1	3.0	C	(2.7)	(2.8)	C	C	C	C	C	C	C
31																								
Median	(2.9)	2.8	2.8	2.8	2.9	2.8	2.9	3.1	(3.2)	(3.2)	3.1	3.1	3.0	3.0	3.0	3.0	3.0	(3.0)	(2.9)	(2.9)	(3.0)	(2.9)	(2.9)	2.9
Count	28	29	30	29	28	28	25	23	24	19	17	16	12	14	15	14	10	6	5	9	15	21	24	25

Sweep ____ Mc to ____ Mc in ____ min

Manual ☐ Automatic ☐

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 763518

TABLE 88

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

F1-M3000 (Characteristic), ____ (Unit), November (Month), 1946

Observed at Washington, D. C.

Lat 39.0° N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M.S.L., J.L.S.

Calculated by: A.M.K., B.W.D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1										L	L	L	C	C	L	L									
2										L	L	(4.1)	L	L	L										
3											L	L	L	C	L	L									
4													L	L	L										
5												L	L												
6										L	L	L													
7														L											
8												L			L										
9												L	L												
10										C	C	C	C	C	C	C									
11												L	L	L											
12												L	L												
13												L	L	L											
14											L	L	(3.8)												
15														L											
16										L	L		L												
17											L H	L													
18																									
19												L													
20													L	L											
21																									
22																									
23																									
24																									
25																									
26																									
27																									
28																									
29																									
30																									
31																									
Median																									
Count																									

Sweep 0.75 Mc to 11.5 Mc in 3.4 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1948 O - 703518

TABLE 89

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C

Form adopted June 1946

IONOSPHERIC DATA

E-MI500 (Characteristic), ____ (Unit), November (Month), 1946

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: M. S. L., J. L. S.

Calculated by: A.M.K., B. W. D.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								(4.2)	(4.2)	(4.3)	C	C	C	C	3.9	(4.0)	4.1	C						
2								4.0	4.1	4.1	4.0	C	C	C	4.1	4.1	4.0	C						
3								4.2	4.1	(4.0)	C	C	C	C	C	C	(4.1)H	C						
4								(3.5)H	(3.8)	(4.0)H	(3.2)H	4.1H	4.0	4.0	(4.1)	(4.0)	4.0	C						
5								A	(4.0)	(4.2)	4.0H	4.0	4.0	3.8	(4.1)	C	(4.1)	C						
6								(3.9)	C	3.8	3.9	4.1	4	C	4.2	(4.3)	A	A						
7								A	(4.2)	4.0	4.0	(4.1)	C	(4.0)	C	(4.1)	4.0	C						
8								4.0	4.0	3.9	3.8	4.1	4.0	3.8	4.0	(4.1)	4.1H	A						
9								3.4	4.1	A	A	3.8	3.9	A	(4.1)	4.3	A	—						
10								C	C	C	C	C	C	C	C	C	C	C						
11								A	A	A	3.8H	3.8H	4.0	3.9	(4.1)	4.1	(4.1)	A						
12								(4.0)	4.2H	4.0H	4.2	3.9	4.0	4.0	3.9	4.0	4.1	A						
13								3.4	3.7H	3.9	4.1	4.0	(4.1)	4.1	A	C	(4.3)	A						
14								C	4.0	3.9	4.0	(3.8)	A	3.9	C	C	C	C						
15								C	4.0	A	(4.0)	A	A	4.1	A	C	4.2H	C						
16								C	A	C	(3.7)	C	C	C	C	C	4.1	C						
17								C	3.8H	(3.7)	C	(3.7)	C	(4.0)	C	(4.1)	4.2	C						
18								(3.8)	(4.1)	4.0	(3.8)	4.0H	(4.0)	C	C	4.1	C	C						
19								C	C	C	4.0H	4.0	4.0	3.8	4.0	4.3	(4.0)	C						
20								C	3.9H	4.1H	A	4.2	A	(4.0)	4.2	4.1	A	C						
21								C	(3.9)	C	3.9	4.1	C	4.2	4.1	4.2	A	C						
22								C	C	C	3.9	4.0	(3.7)	3.9	(3.9)	A	C	C						
23								A	4.0	4.0	4.2	4.0	A	4.1	4.3	4.3	(3.8)	C						
24								C	(4.0)	A	3.9	4.0	(4.1)	C	4.0	4.1	(4.0)	C						
25								C	(4.0)	4.0H	3.9	3.9	4.1	4.1	(4.1)	(4.3)	3.7H	C						
26								C	C	C	3.9	C	(3.9)	C	C	A	A							
27								C	4.0H	4.0	4.0	4.1	(4.0)	4.2	(4.1)	4.3	3.9	C						
28								C	A	(4.1)	4.1H	4.0	3.9	4.0	(4.1)H	4.0	(4.0)							
29								C	A	(3.8)	(4.3)	4.1	4.1	(4.2)	(4.1)	4.2H	(3.7)	C						
30								C	A	(4.0)	3.7	(4.1)	3.9	4.1	4.2	C	C							
31																								
Median								4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.1	4.1	4.0							
Count								10	20	20	24	23	17	20	20	20	20							

Sweep 0.75 Mc to 11.5 Mc in 3.4 min

Manual ☐ Automatic ☒

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Table 91

Sudden Ionosphere Disturbances Observed at Washington, D.C.

Day	GCT		Location of Transmitters	Relative intensity at minimum*	Other Phenomena
	Beginning	End			
November					
19	1653	1730	Ohio, D.C., Mexico, New York	0.1	Terr.mag.pulse** 1650-1700
21	1630	1800	Ohio, D.C., England, Mexico, Ontario	0.02	
24	1347	1420	D.C., England, Mexico, Ontario	0.03	
24	1552	1610	D.C., Mexico, Ontario	0.3	
24	1740	1840	D.C., Mexico, Ontario	0.2	Terr.mag.pulse** 1735-1750
25	1651	1720	Ohio, D.C., Chile, Mexico, Ontario	0.2	
26	1655	1745	Ohio, D.C., Chile, Ontario	0.1	

*Ratio of received field intensity during SID to average field intensity before and after, for station W8XAL, 6080 kilocycles, 600 kilometers distant, for all SID except the following: Station XEWW, 9500 kilocycles, received at Sterling, Va., 3000 kilometers distant, was used for the SID occurring on November 24.

**As observed on Cheltenham magneogram of the United States Coast and Geodetic Survey.

Table 90

Ionospheric Storminess, November 1946

Day November	Ionosphere Character* 00-12 GCT	12-24 GCT	Principal Storms Beginning GCT	End GCT	Geomagnetic Character** 00-12 GCT	12-24 GCT
1	1	2			3	3
2	3	***			2	1
3	1	***			1	1
4	2	***			1	2
5	2	2			2	3
6	1	2			3	3
7	1	2			2	1
8	1	1			0	2
9	0	1			2	2
10	1	***			2	2
11	***	***			3	2
12	2	***			3	2
13	0	2			1	2
14	1	2			0	1
15	1	2			2	3
16	2	3			3	2
17	2	***			1	2
18	1	1			1	1
19	1	1			3	3
20	2	1			2	3
21	2	1			4	3
22	2	0			3	2
23	1	***			2	1
24	3	1			3	3
25	1	1			3	3
26	1	1			2	1
27	1	1			0	0
28	1	1			1	1
29	1	1			0	0
30	1	3			0	1

*Ionosphere Character figure (I-figure) for ionospheric storminess at Washington, D.C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of American magnetic K-figure, determined by a number of observatories, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

***No readable record. Refer to Table 79 for detailed explanation.

Table 92

Provisional Radio Propagation Quality Figures
October 1946
Compared with CRPL Warnings and CRPL Probable Disturbed Period Forecasts

Day	North Atlantic						North Pacific					
	Quality Figure		CRPL* Warning		CRPL** Probable Disturbed Period Forecast	Geomagnetic K_A	Quality Figure		CRPL* Warning		CRPL** Probable Disturbed Period Forecast	Geomagnetic K_A
	01-12 GCT	13-24 GCT	01-12 GCT	13-24 GCT		01-12 GCT / 13-24 GCT	01-12 GCT	13-24 GCT	01-12 GCT	13-24 GCT		01-12 GCT / 13-24 GCT
1	(4)	5	X	X		3 3	6	8	X	X		3 3
2	6	5	X			2 2	5	5	X			2 2
3	7	6				2 2	6	5				2 2
4	6	6			X	2 2	6	7			X	2 2
5	7	6			X	2 3	6	6			X	2 3
6	6	6				3 3	5	5				3 3
7	6	5				3 2	5	8				3 2
8	6	7				1 2	8	6				1 2
9	5	6				4 3	6	7				4 3
10	6	5				2 2	5	5				2 2
11	6	6				2 2	5	(4)				2 2
12	6	6				2 1	6	5				2 1
13	6	6				1 1	8	8				1 1
14	7	6				1 1	7	6				1 1
15	7	7				1 2	6	5				1 2
16	6	6				2 2	6	5				2 2
17	6	6				1 1	7	7				1 1
18	7	7				1 1	7	(4)				1 1
19	7	7			X	0 2	5	(4)			X	0 2
20	6	7	X		X	3 3	6	(4)	X		X	3 3
21	7	7			X	1 2	7	6			X	1 2
22	7	6				2 1	8	-				2 1
23	6	7				2 1	8	5				2 1
24	6	6			X	1 2	7	5			X	1 2
25	6	7			X	2 1	7	(4)			X	2 1
26	5	5			X	3 3	5	5			X	3 3
27	(3)	5	X	X	X	5 4	7	(4)	X	X	X	5 4
28	5	5	X		X	2 1	5	(4)	X		X	2 1
29	5	6				2 1	(4)	(4)				2 1
30	6	6				1 1	5	(3)				1 1
31	5	5				2 3	5	(4)				2 3
Score:												
H			2		1				1		5	
M			0		1				9		5	
G			26		20				19		16	
(S)			1		2				1		2	
S			2		7				1		3	

*Broadcast on WWV, Washington, D. C. Times of warnings recorded to nearest half-day as broadcast.

**In addition to dates marked X, the following were designated as probable disturbed days on forecasts more than eight days in advance of said dates: October 14-18.

Quality Figure Scale:

1 = Useless
2 = Very poor
3 = Poor
4 = Poor to fair
5 = Fair
6 = Fair to good
7 = Good
8 = Very good
9 = Excellent

Symbols

X Warning given or probable disturbed date.

H Quality 4 or worse on day or half-day of warning.

M Quality 4 or worse on day or half-day of no warning.

G Quality 5 or better on day of no warning.

(S) Quality 5 on day of warning.

S Quality 6 or better on day of warning.

( ) Quality 4 or worse. (disturbed).

Geomagnetic K_A on the standard scale of 0 to 9, 9 representing the greatest disturbance.

Table 93

Daily Median Values of American Relative Sunspot Numbers*

November 1946

Date	No.	Date	No.
1	86	16	157
2	59	17	146
3	54	18	143
4	79	19	142
5	76	20	132
6	104	21	150
7	114	22	134
8	103	23	141
9	120	24	142
10	123	25	125
11	142	26	100
12	156	27	94
13	141	28	92
14	165	29	94
15	164	30	71
No. of Days 30		Mean 118.3	

* Median of data from 14 observers.

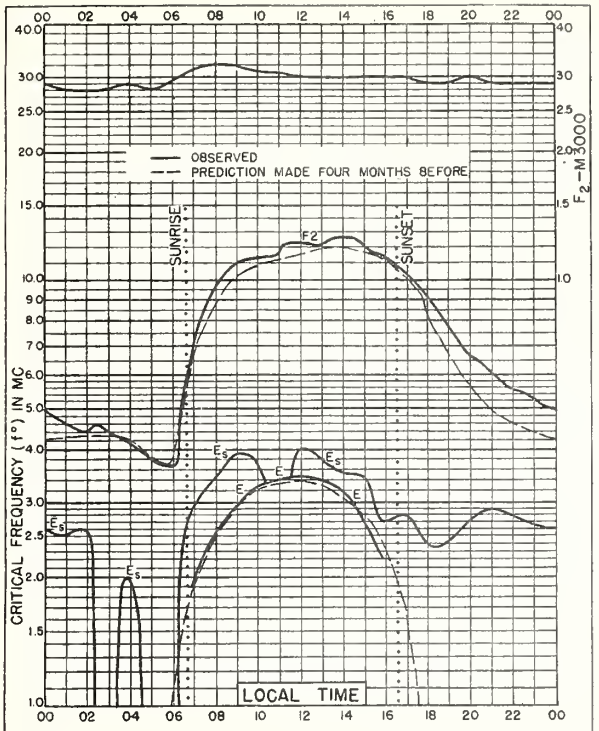


Fig. 1. WASHINGTON, D.C.
39.0°N, 77.5°W NOVEMBER 1946

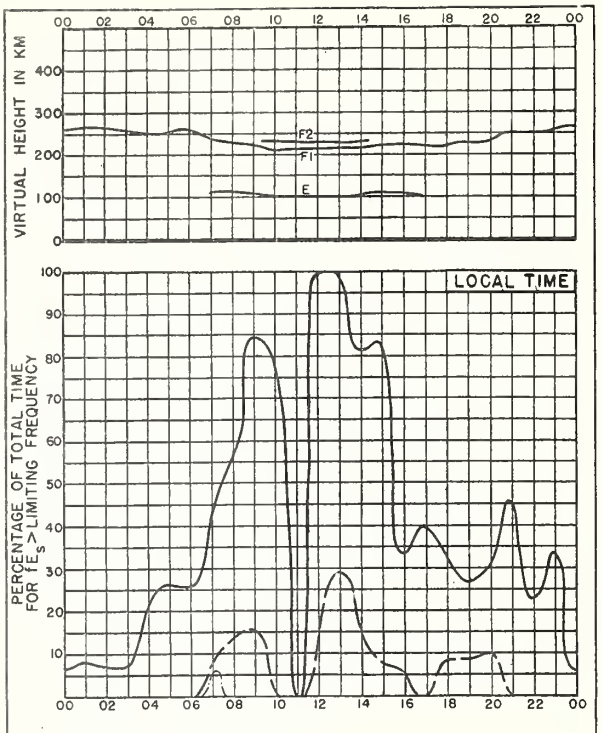


Fig. 2. WASHINGTON, D.C. NOVEMBER 1946

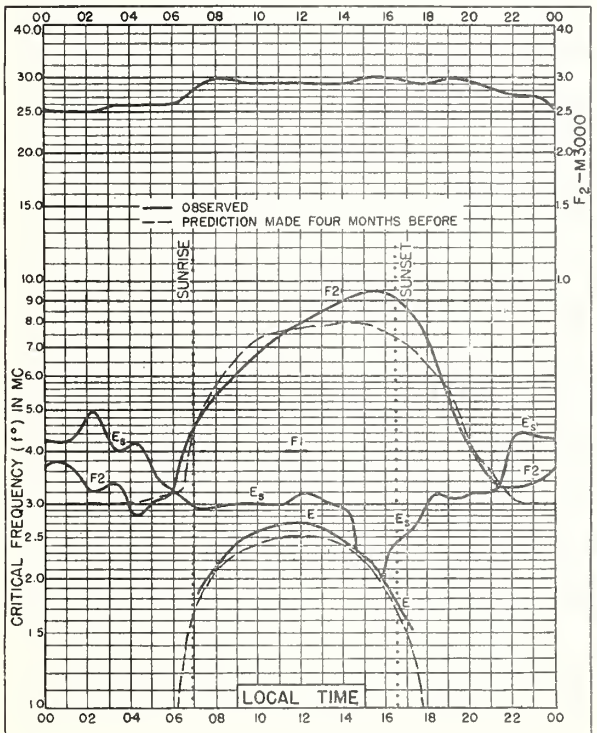


Fig. 3. FAIRBANKS, ALASKA
64.9°N, 147.8°W OCTOBER 1946

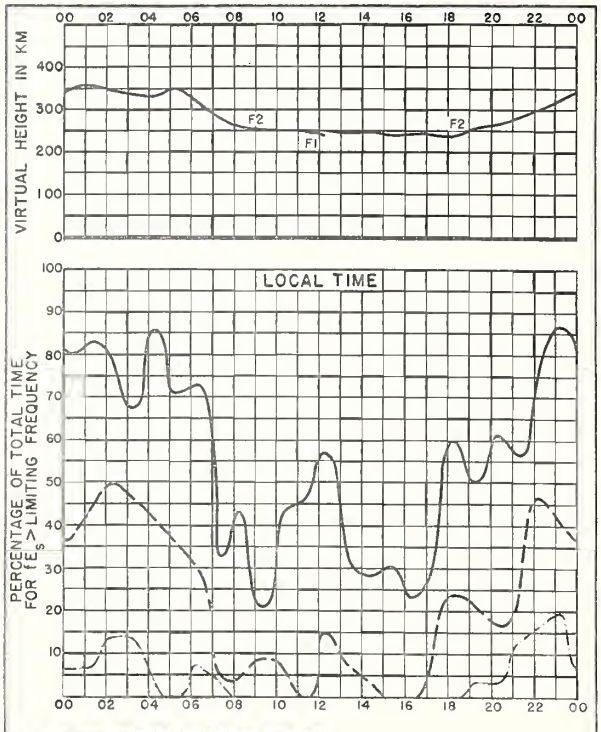


Fig. 4. FAIRBANKS, ALASKA OCTOBER 1946

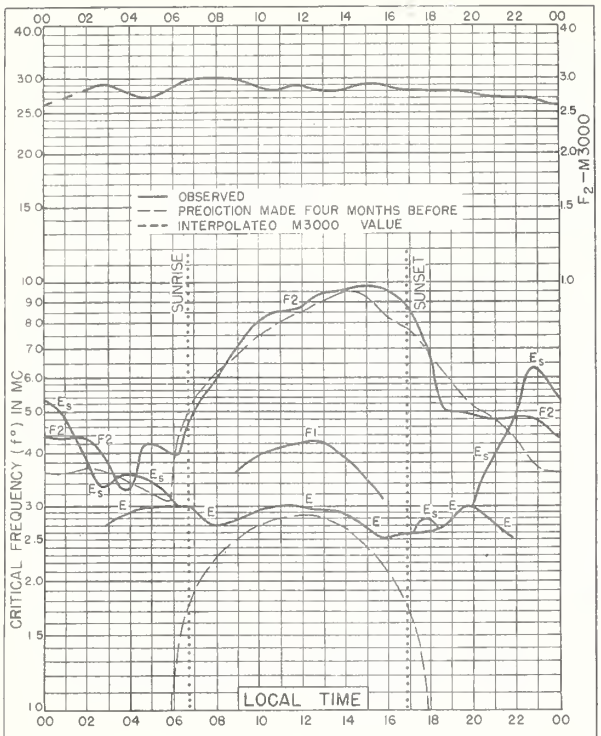


Fig. 5. CHURCHILL, CANADA
58.8°N, 94.2°W OCTOBER 1946

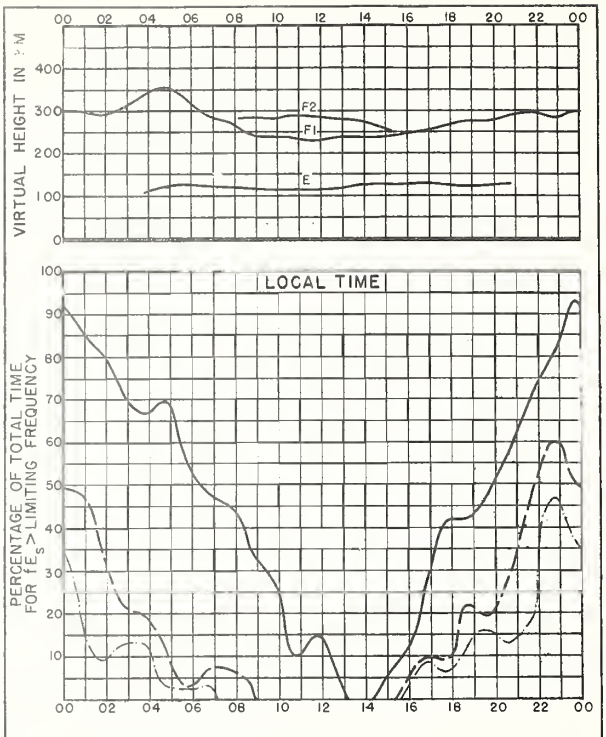


Fig. 6. CHURCHILL, CANADA OCTOBER 1946

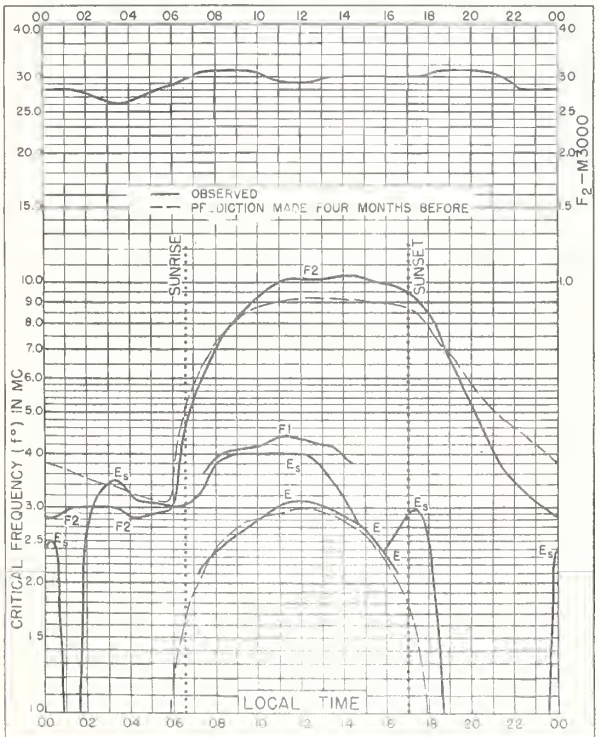


Fig 7. PRINCE RUPERT, CANADA
54 3°N, 130 3°W OCTOBER 1946

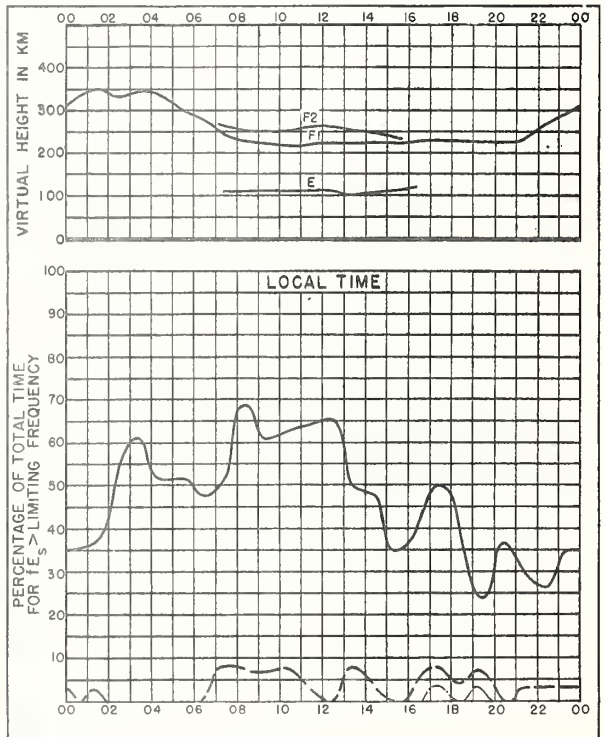


Fig. 8. PRINCE RUPERT, CANADA OCTOBER 1946

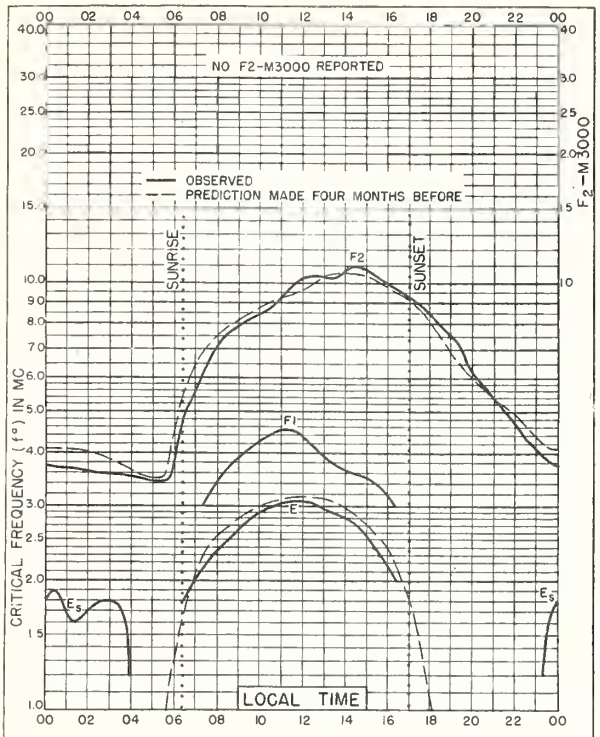


Fig. 9. PORTAGE la PRAIRIE
49.9°N, 98.3°W OCTOBER 1946

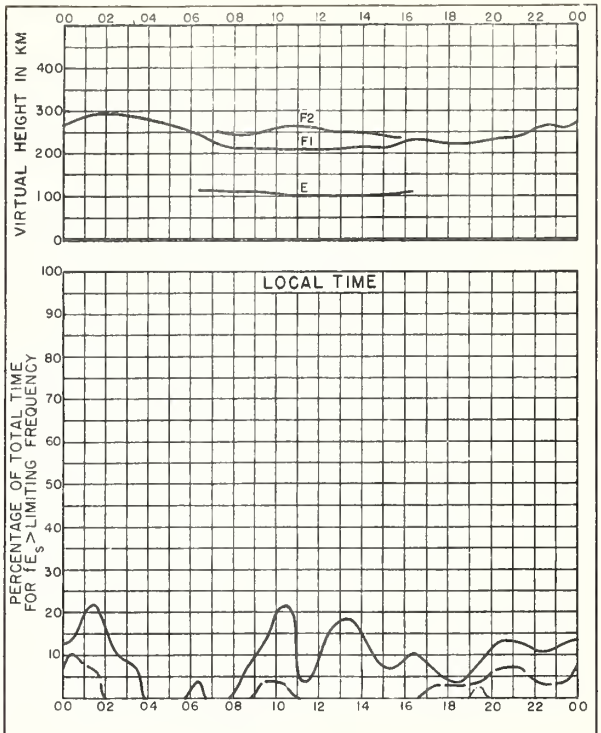


Fig. 10. PORTAGE la PRAIRIE OCTOBER 1946

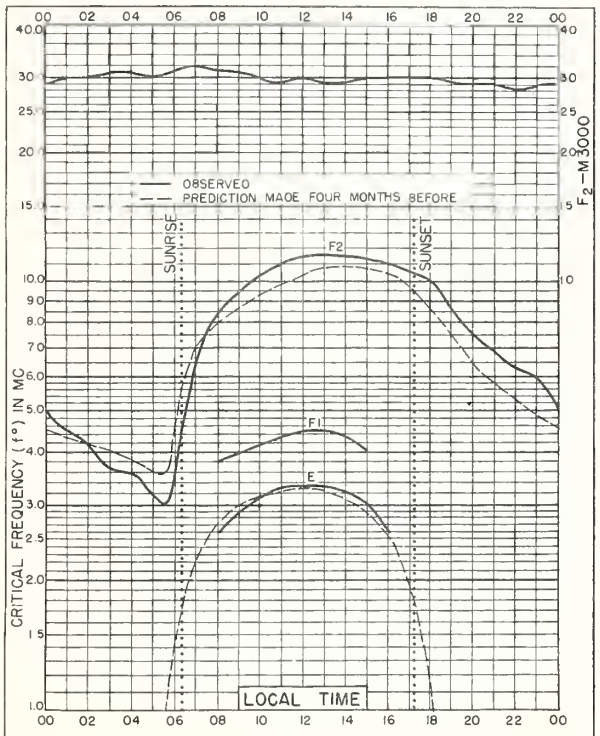


Fig. 11. OTTAWA, CANADA
45.5°N, 75.8°W OCTOBER 1946

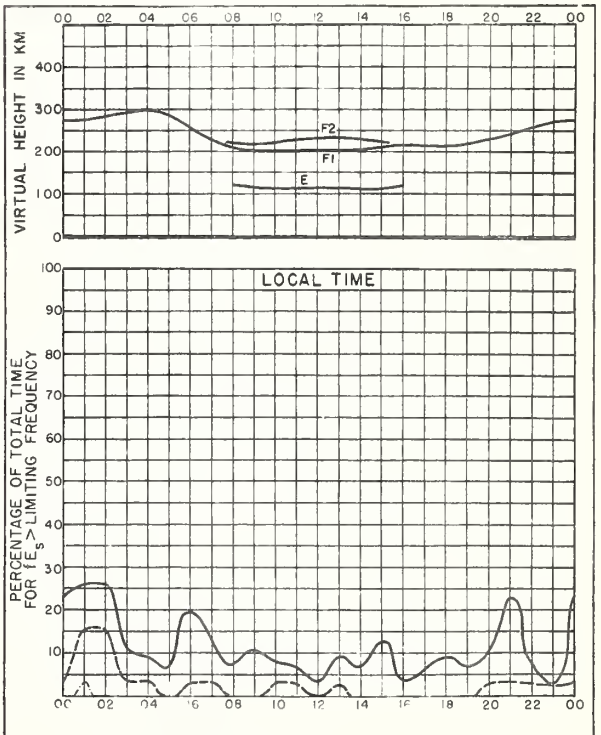


Fig. 12. OTTAWA, CANADA OCTOBER 1946

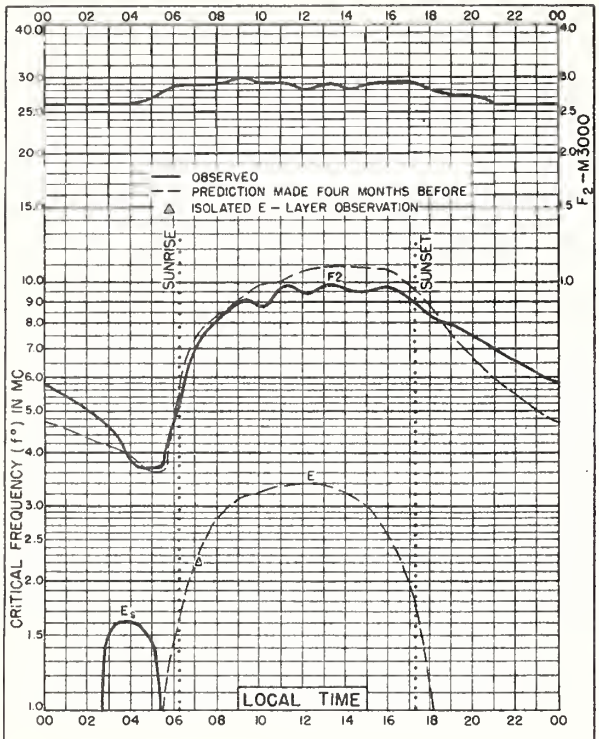


Fig. 13. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W OCTOBER 1946

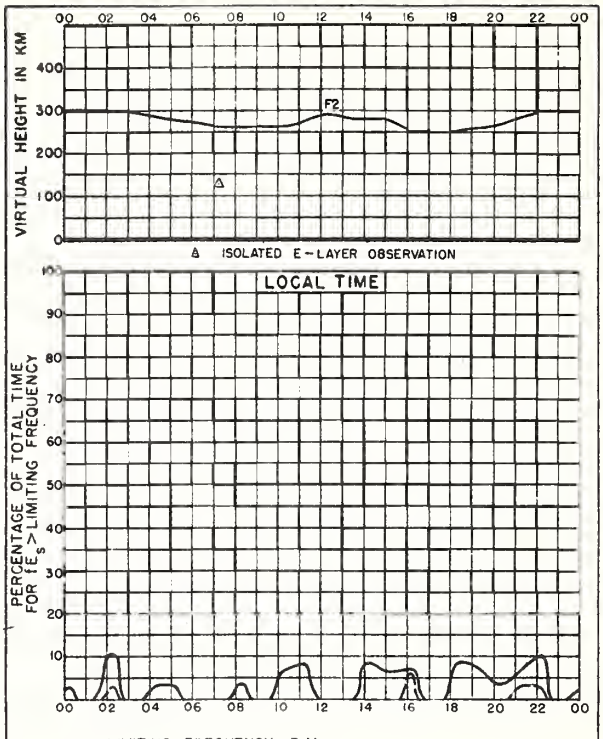


Fig. 14. BOSTON, MASSACHUSETTS OCTOBER 1946

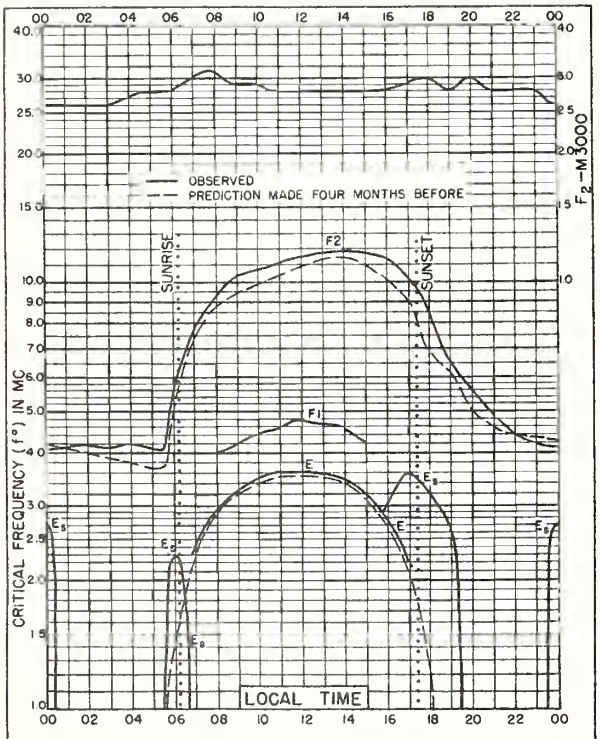


Fig. 15. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W OCTOBER 1946

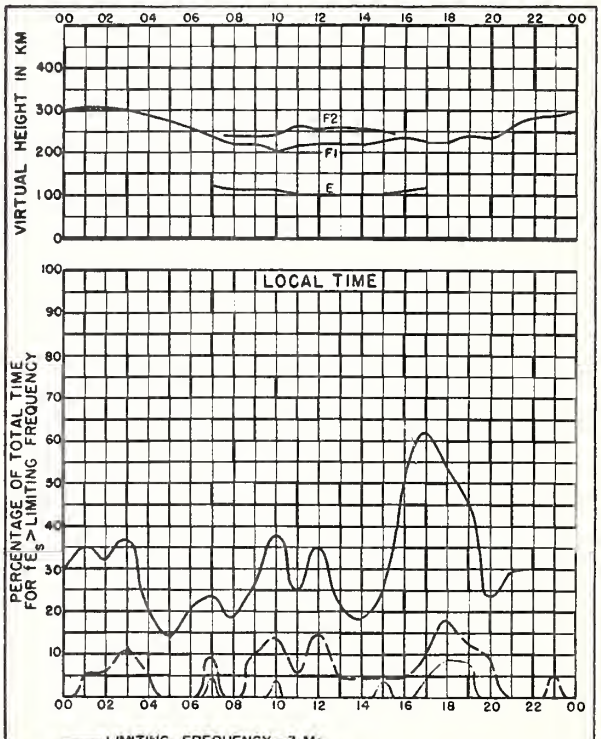


Fig. 16. SAN FRANCISCO, CALIFORNIA OCTOBER 1946

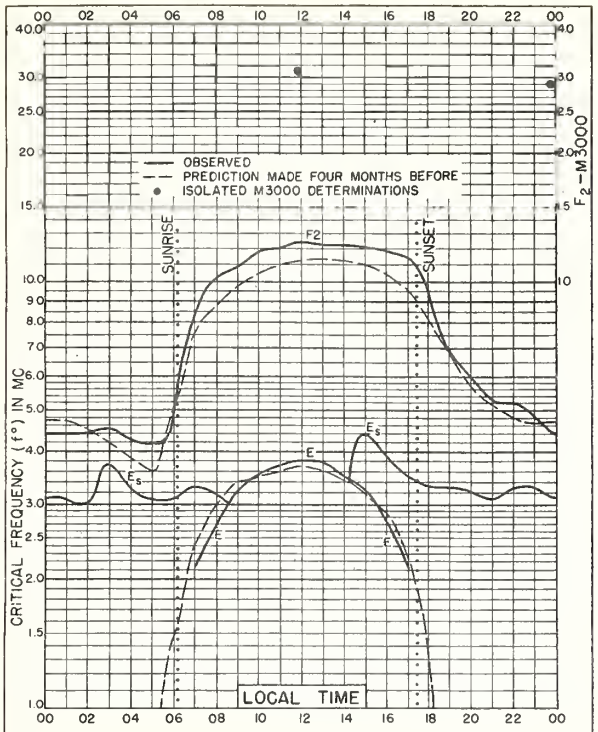


Fig. 17. WHITE SANDS, NEW MEXICO
32.6°N, 106.5°W OCTOBER 1946

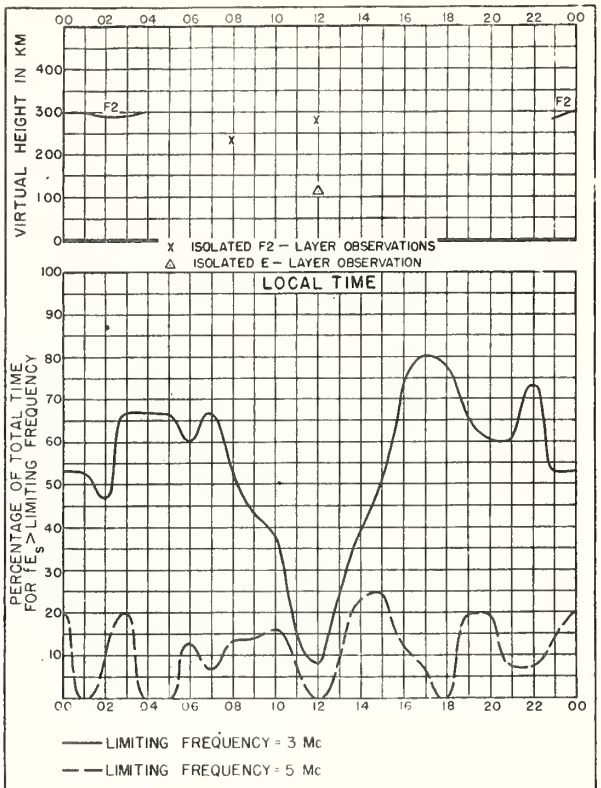


Fig. 18. WHITE SANDS, NEW MEXICO OCTOBER 1946

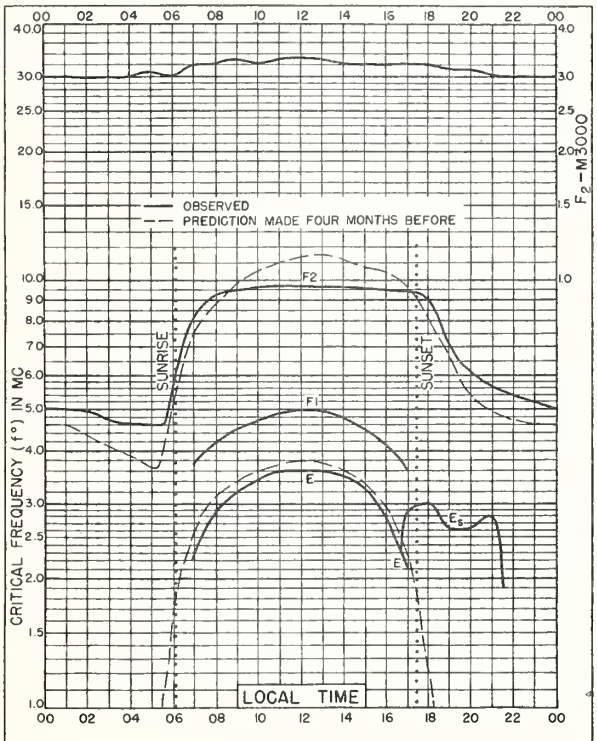


Fig. 19. BATON ROUGE, LOUISIANA
30.5°N, 91.2°W OCTOBER 1946

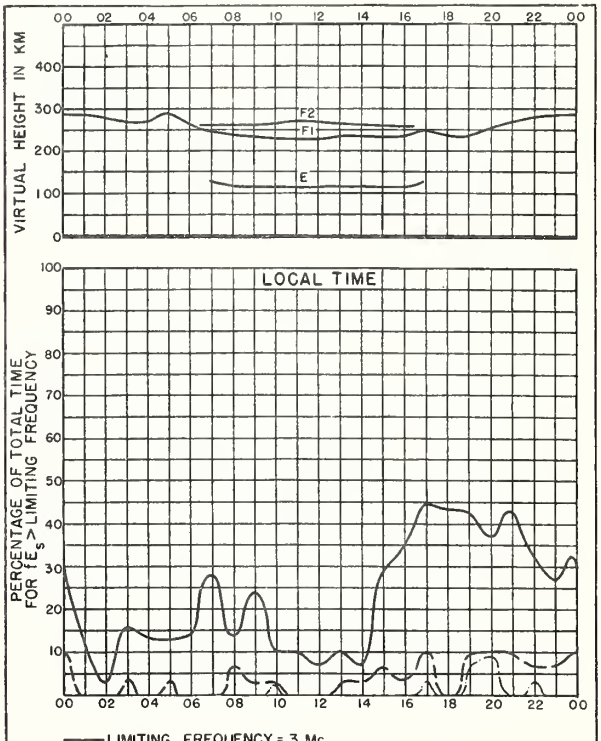


Fig. 20. BATON ROUGE, LOUISIANA OCTOBER 1946

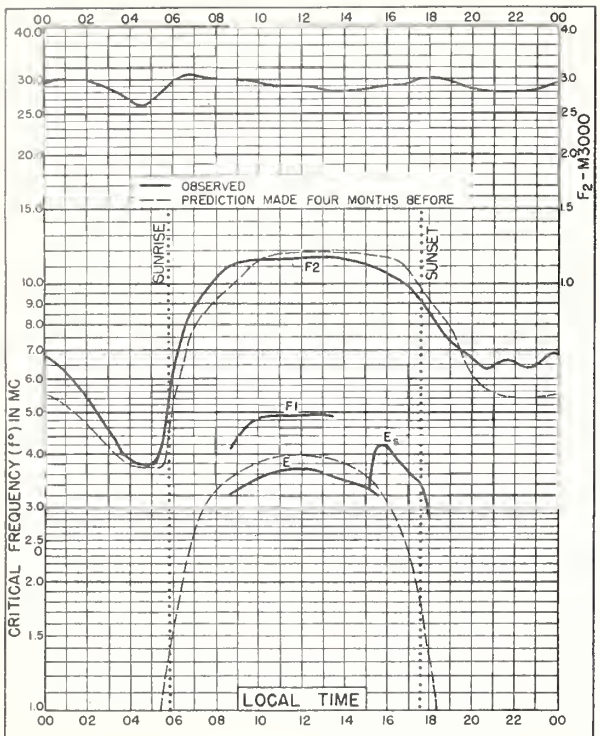


Fig. 21. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W OCTOBER 1946

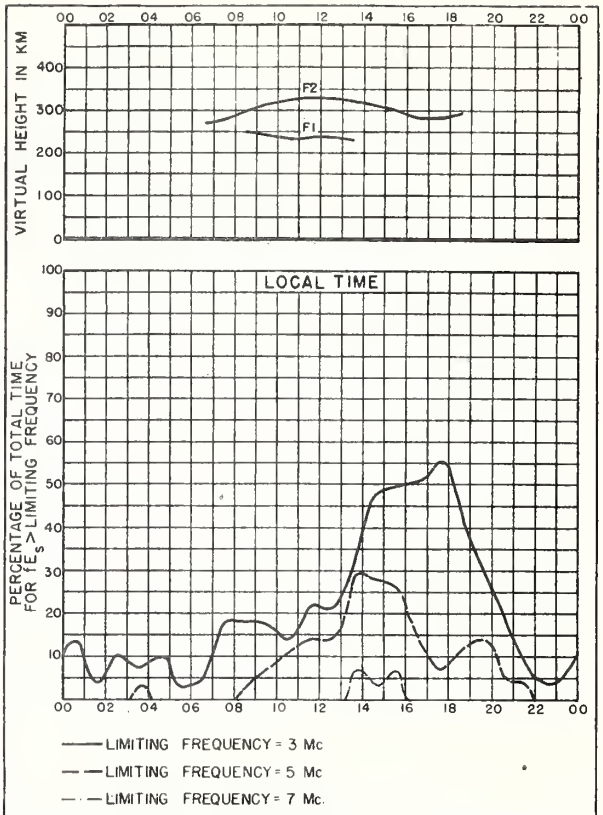


Fig. 22. SAN JUAN, PUERTO RICO OCTOBER 1946

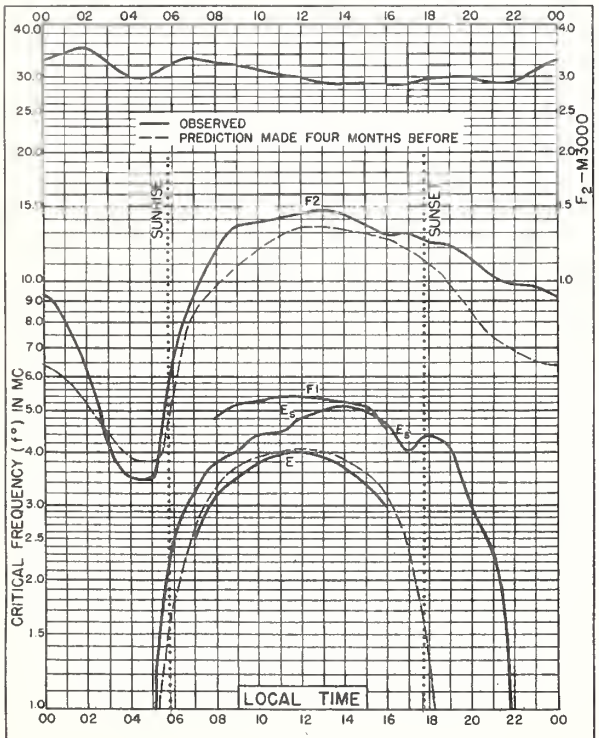


Fig. 23. TRINIDAD, BRIT. WEST INDIES
10.6°N, 61.2°W OCTOBER 1946

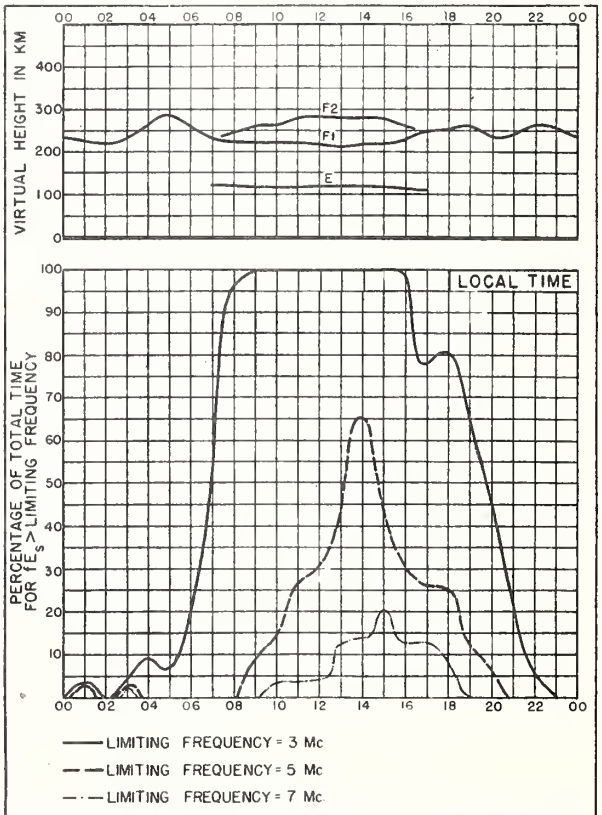


Fig. 24. TRINIDAD, BRIT. WEST INDIES OCTOBER 1946

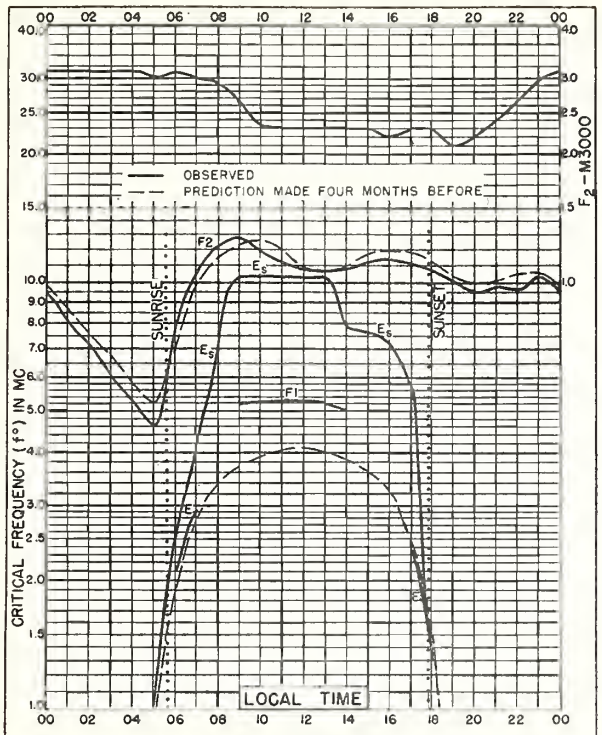


Fig. 25. HUANCAYO, PERU
12.0°S, 75.3°W OCTOBER 1946

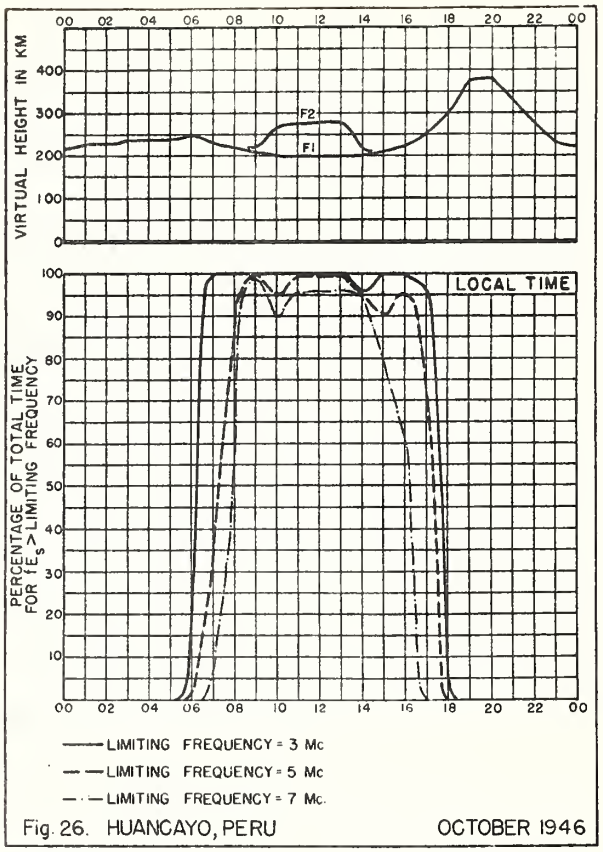


Fig. 26. HUANCAYO, PERU OCTOBER 1946

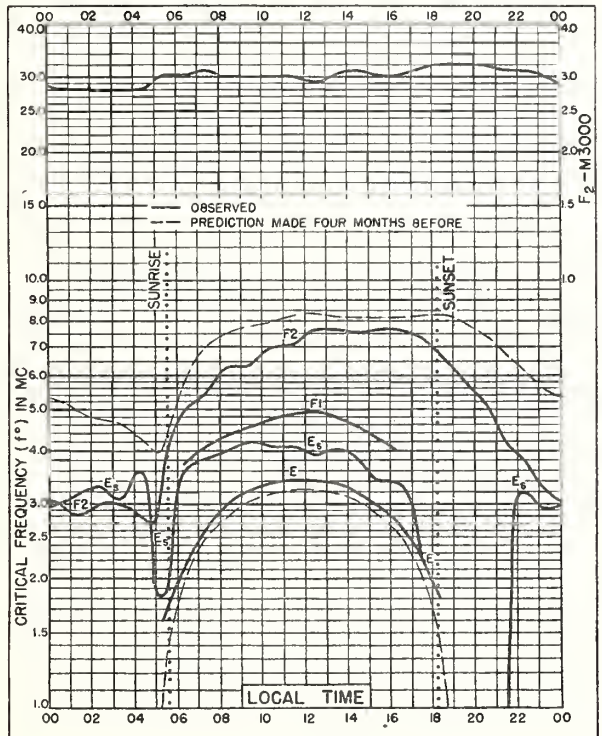


Fig. 27. PRINCE RUPERT, CANADA
54.3°N, 130.3°W SEPTEMBER 1946

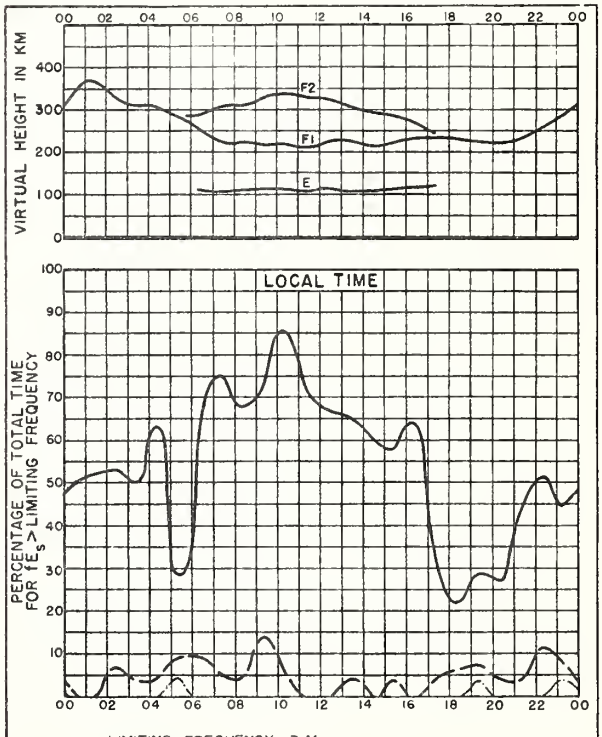


Fig. 28. PRINCE RUPERT, CANADA SEPTEMBER 1946

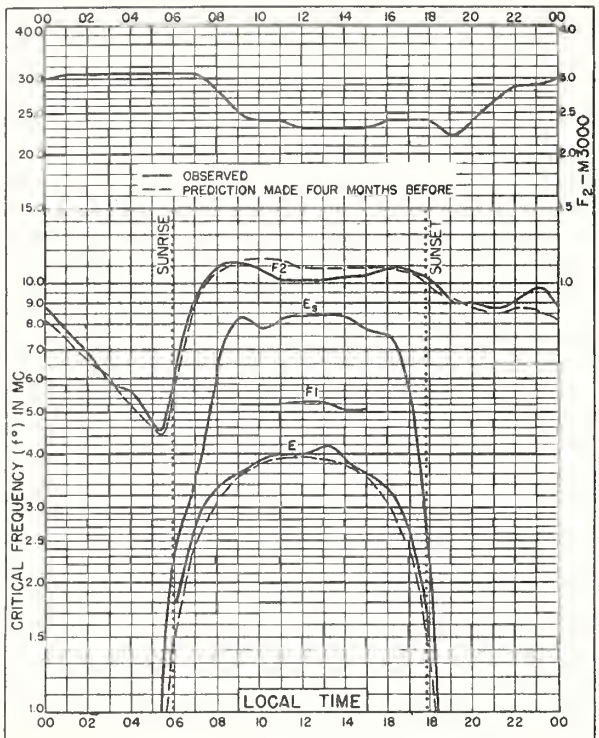


Fig 29. HUANCAYO, PERU
12.0°S. 75.3°W SEPTEMBER 1946

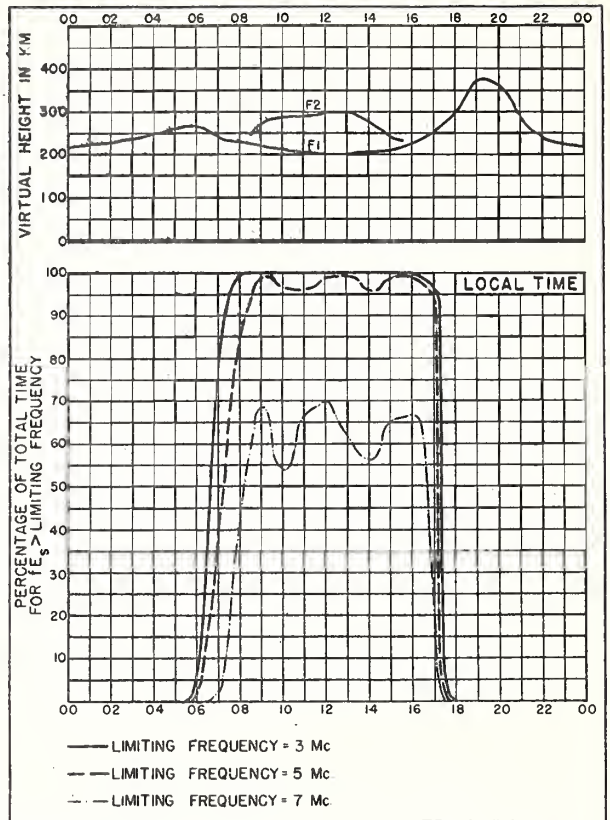


Fig. 30. HUANCAYO, PERU SEPTEMBER 1946

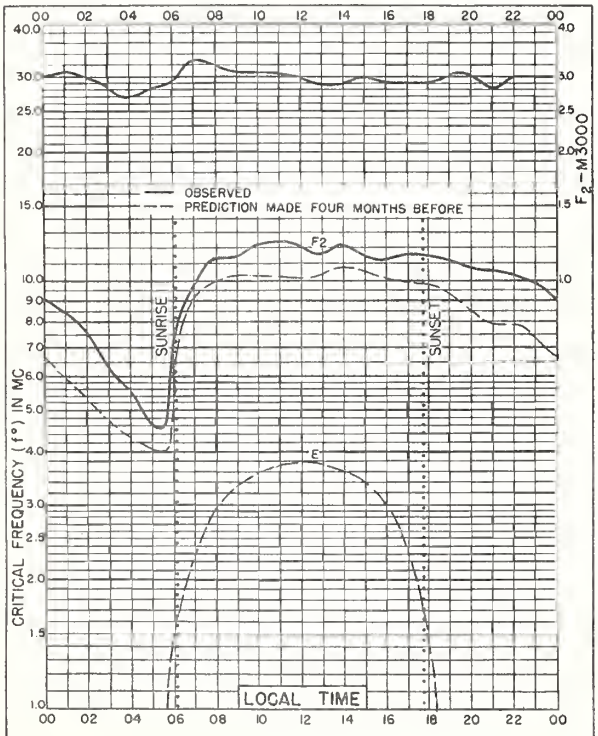


Fig. 31. RAROTONGA I.
21.3°S, 159.8°W SEPTEMBER 1946

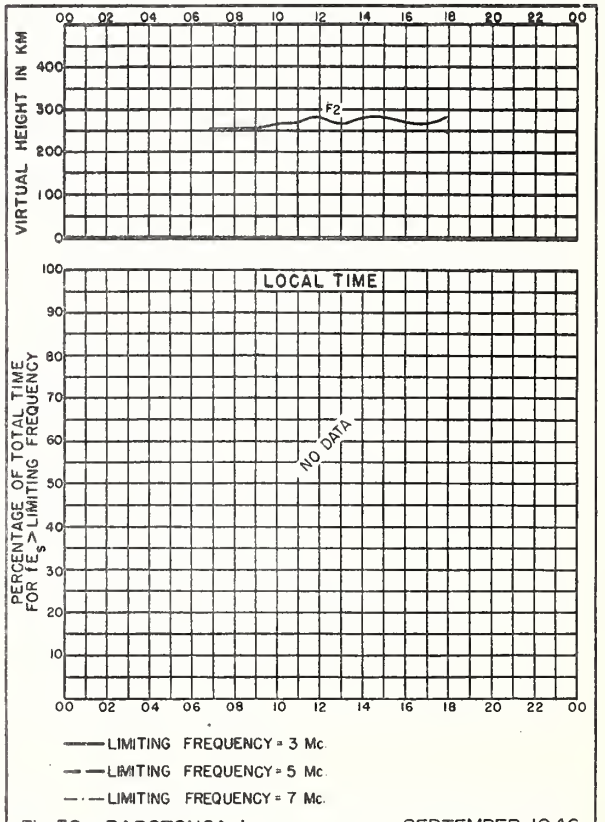


Fig. 32. RAROTONGA I. SEPTEMBER 1946

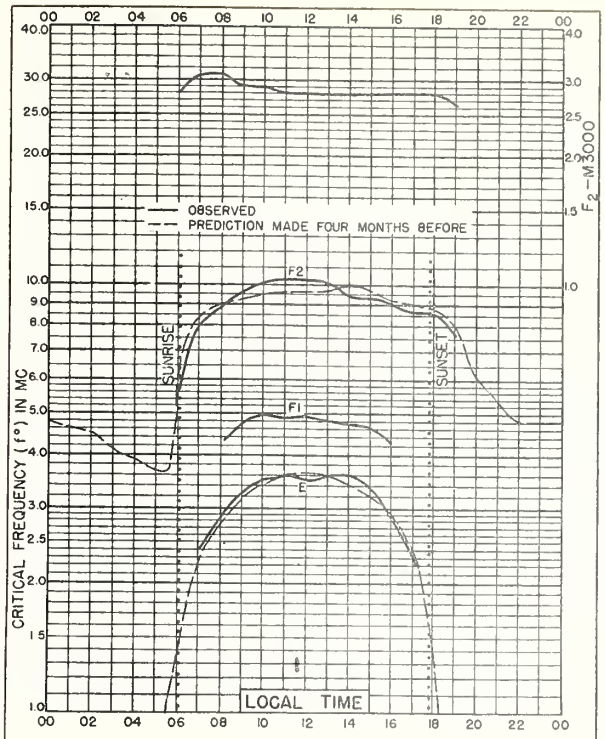


Fig. 33. KERMADEC IS.
29.3°S, 177.9° SEPTEMBER 1946

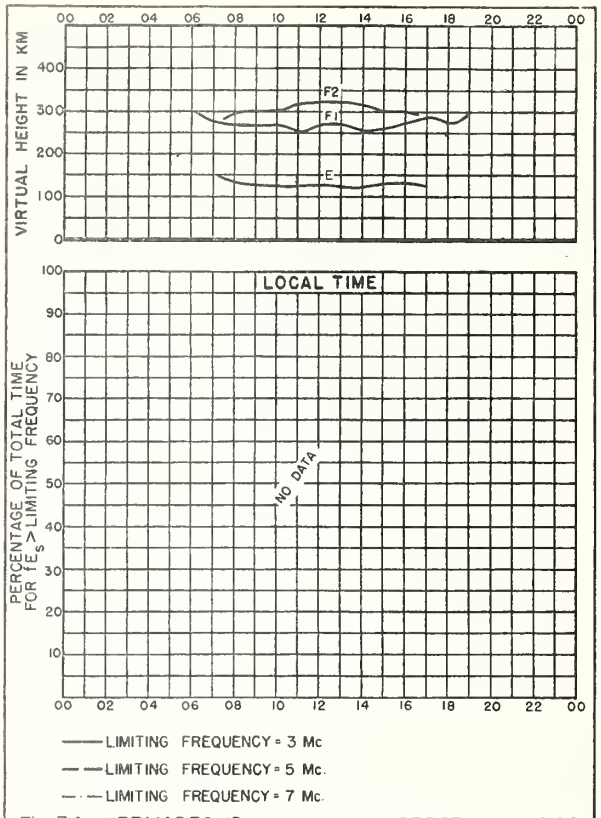


Fig. 34. KERMADEC IS. SEPTEMBER 1946

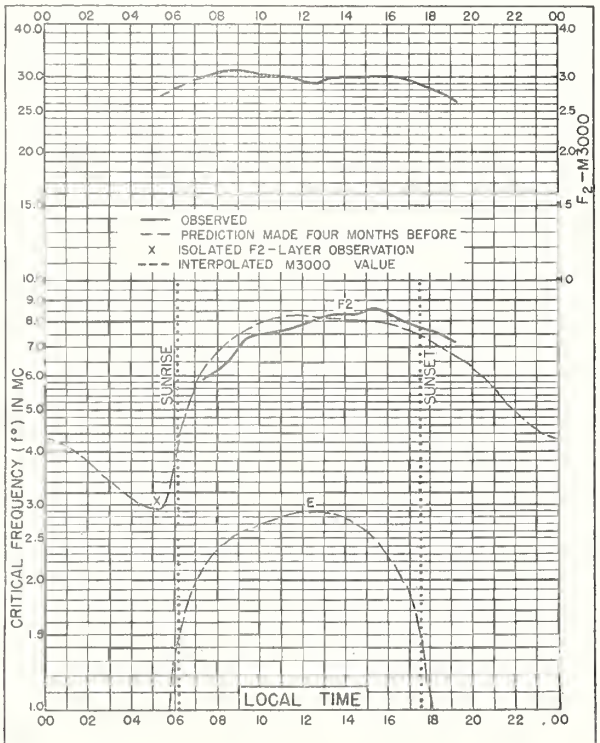


Fig. 35. CAMPBELL I.
52.5°S, 169.2°E SEPTEMBER 1946

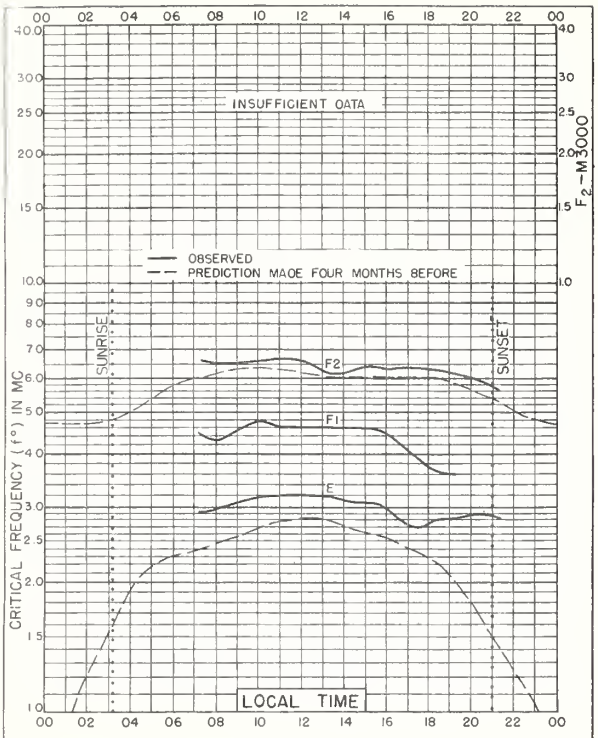


Fig. 36 TROMSO, NORWAY
69.7°N, 18.9°E AUGUST 1946

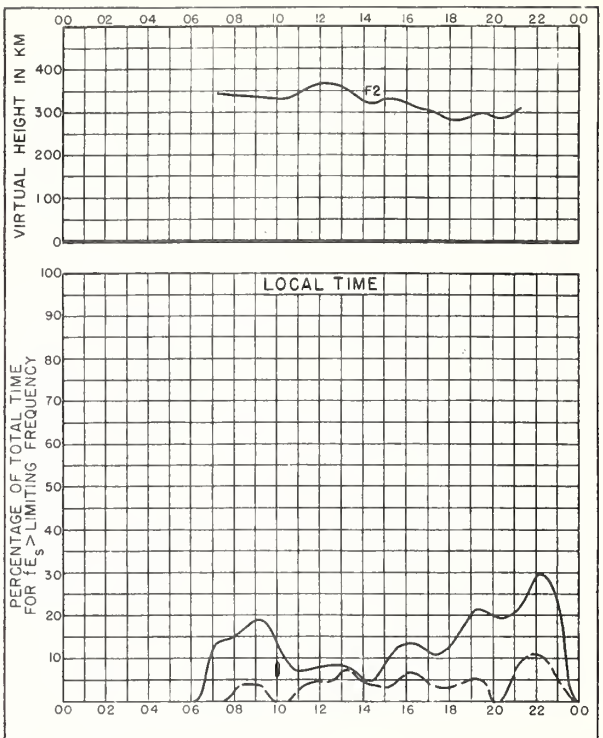


Fig. 37. TROMSO, NORWAY AUGUST 1946

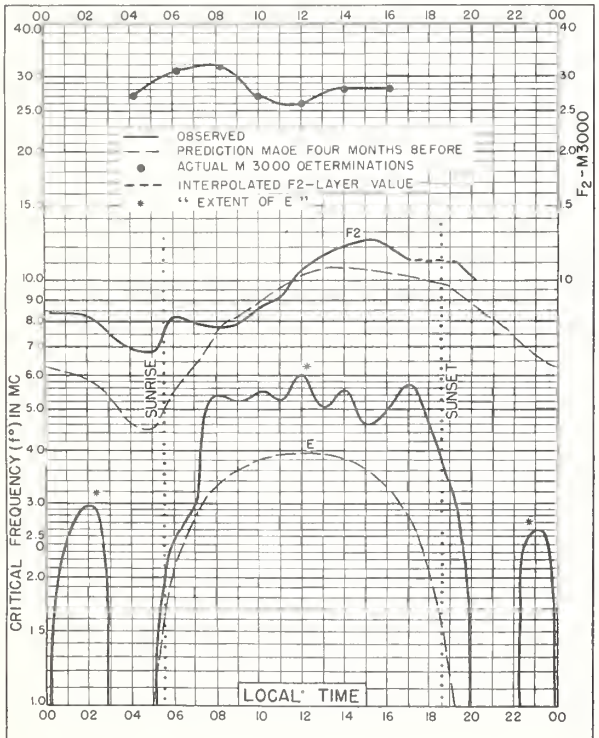


Fig. 38. CAIRO, EGYPT
30.6°N, 31.9°E AUGUST 1946

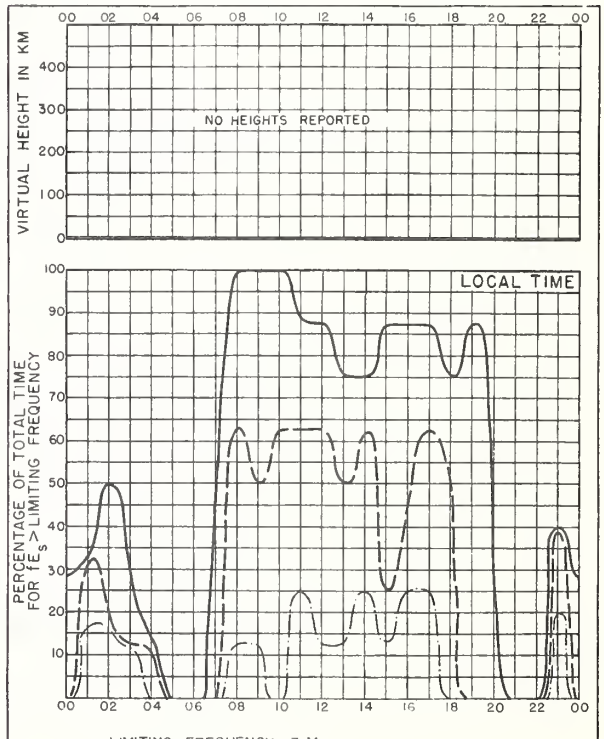


Fig. 39. CAIRO, EGYPT AUGUST 1946

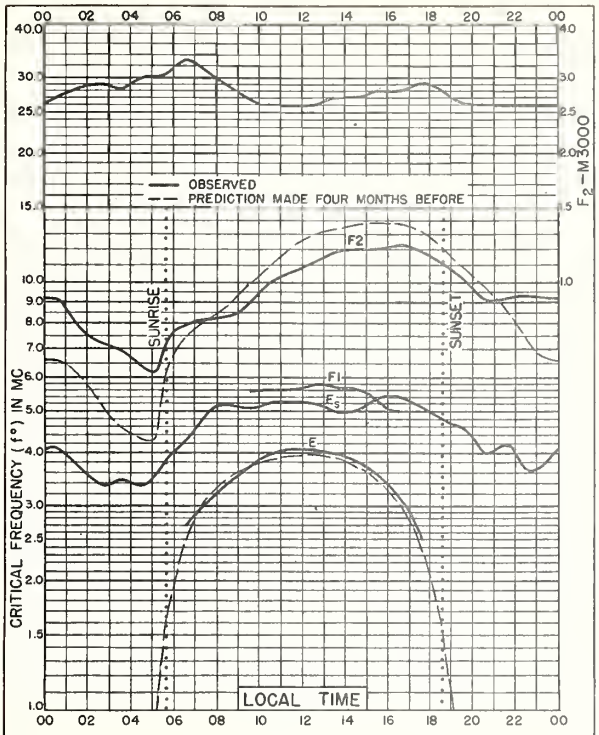


Fig. 40. OKINAWA I.
26.3°N, 127.8°E AUGUST 1946

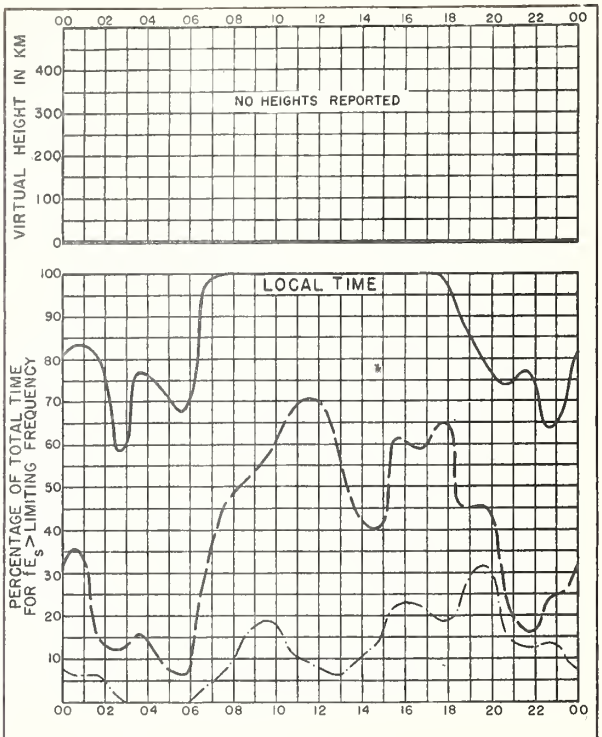


Fig. 41. OKINAWA I. AUGUST 1946

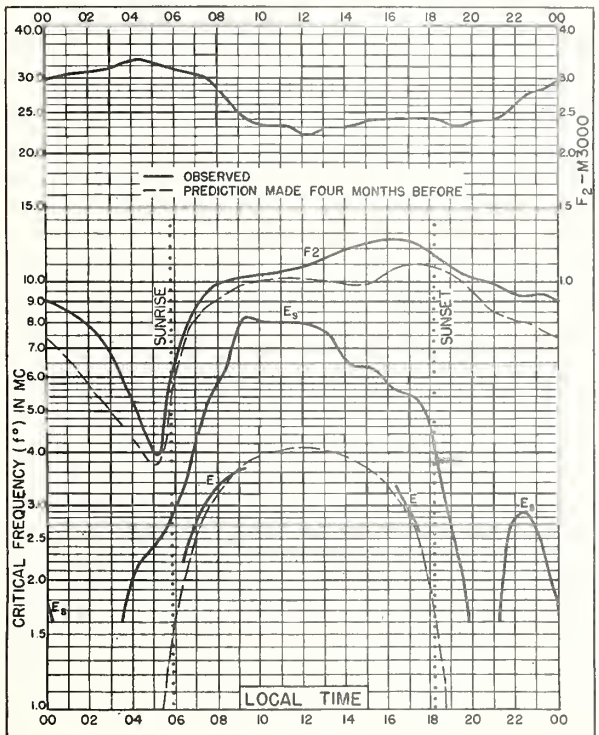


Fig. 42. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E AUGUST 1946

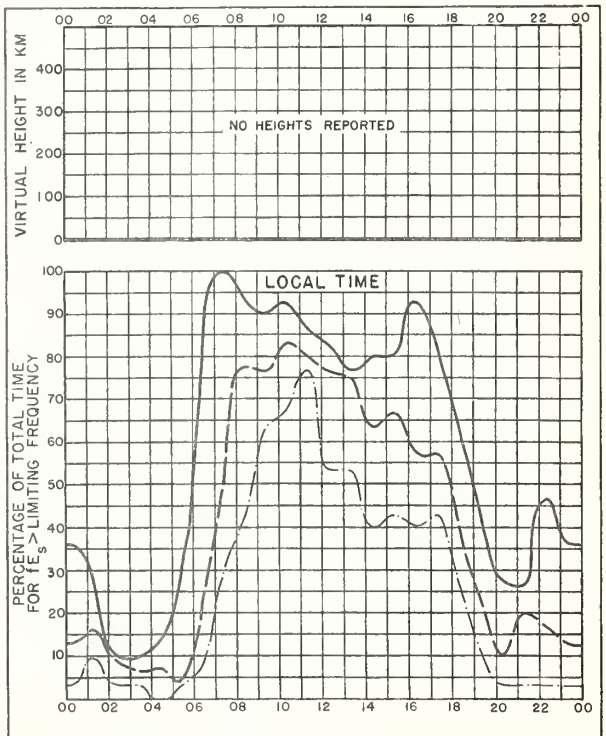


Fig. 43. LEYTE, PHILIPPINE IS. AUGUST 1946

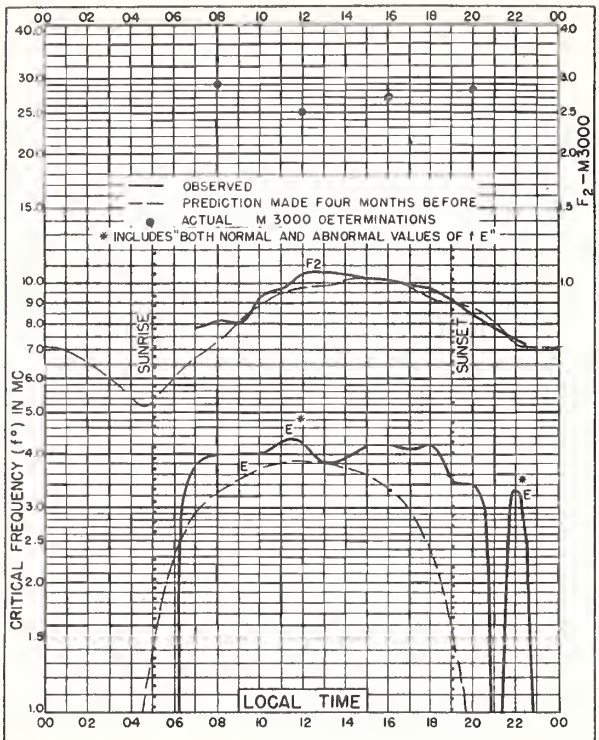


Fig. 44 PESHAWAR, INDIA
34 0°N, 71.5°E JULY 1946

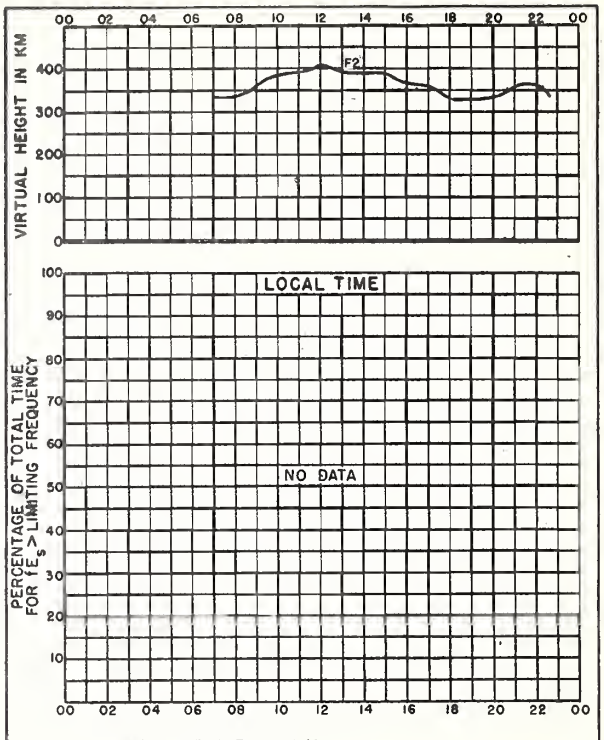


Fig. 45. PESHAWAR, INDIA JULY 1946

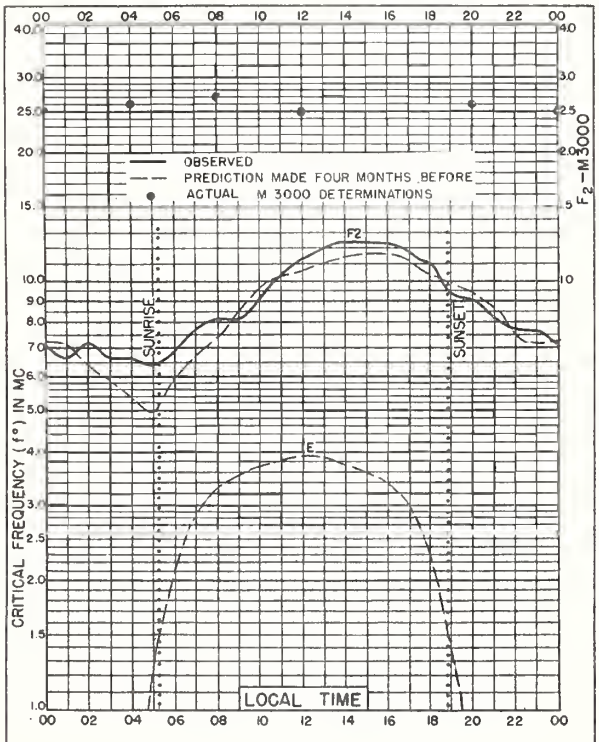


Fig. 46. DELHI, INDIA
28.6°N, 77.1°E JULY 1946

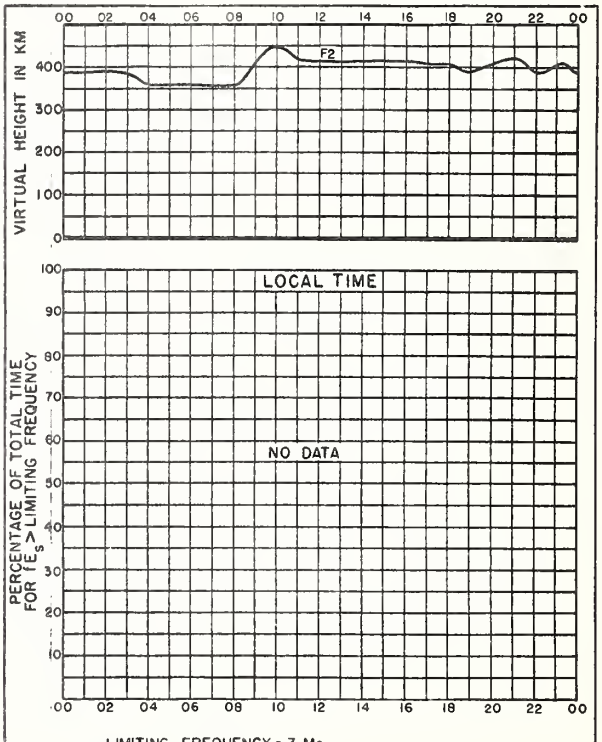


Fig. 47. DELHI, INDIA JULY 1946

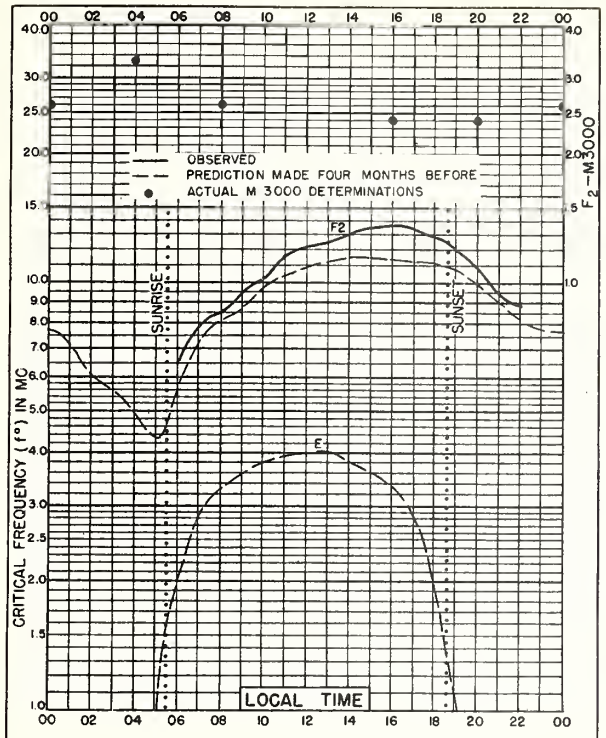


Fig. 48. BOMBAY, INDIA
19.0°N, 73.0°E
JULY 1946

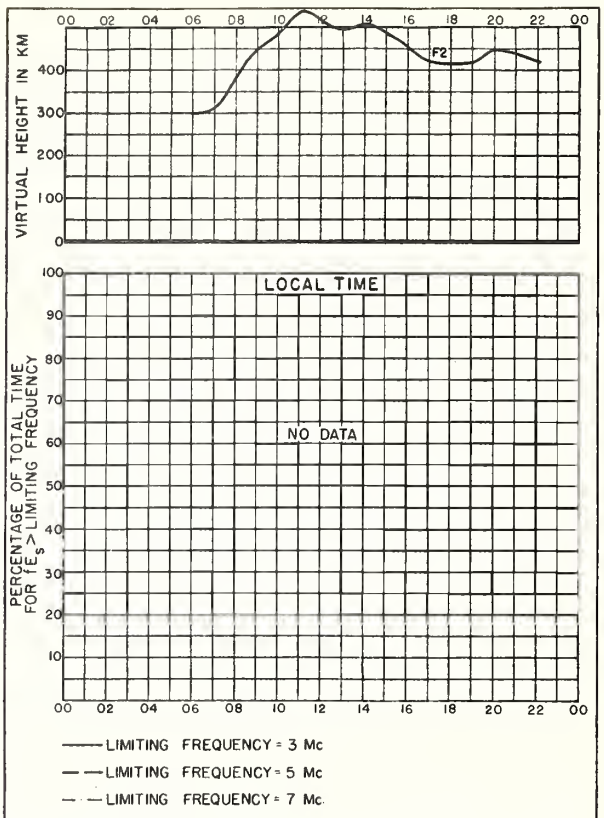


Fig. 49. BOMBAY, INDIA
JULY 1946

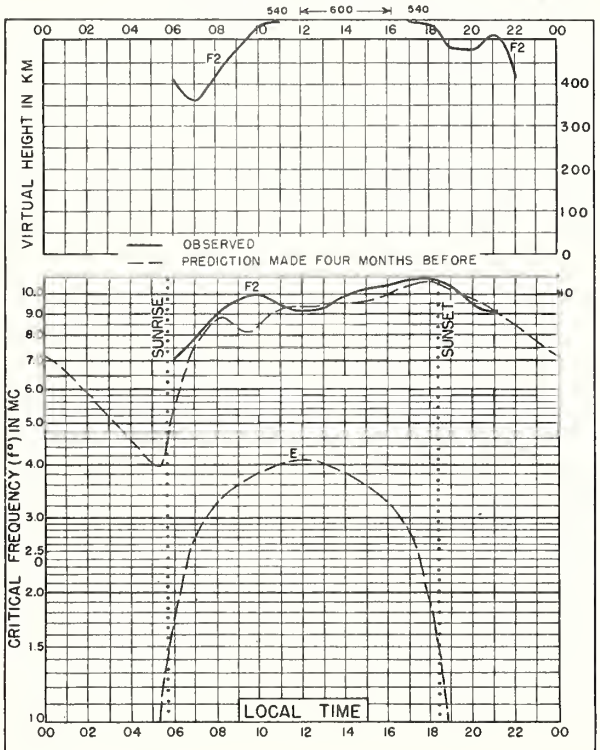


Fig. 50. MADRAS, INDIA
13.0°N, 80.2°E
JULY 1946

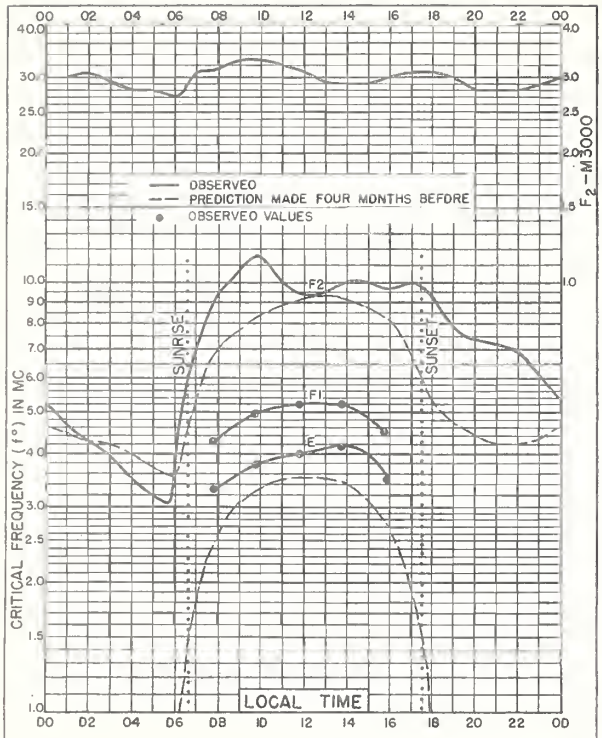


Fig. 51. RAROTONGA I.
21.3°S, 159.8°W
JULY 1946

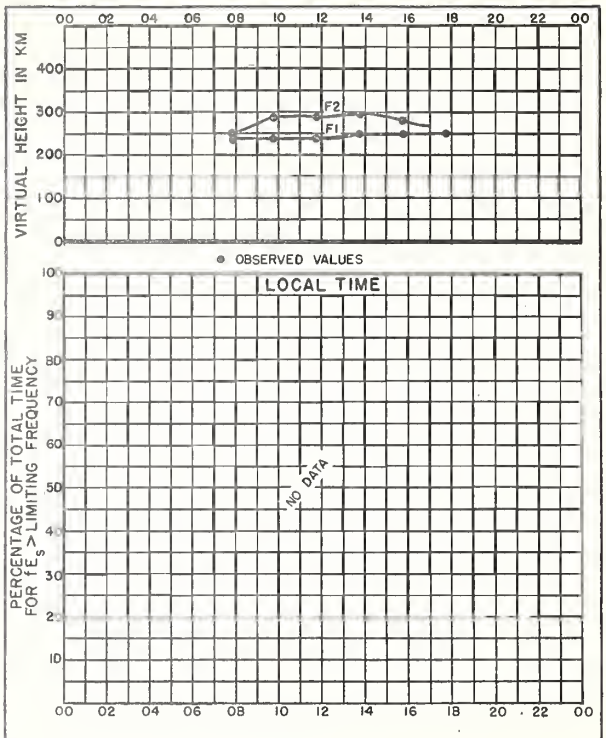


Fig. 52. RAROTONGA I.
JULY 1946

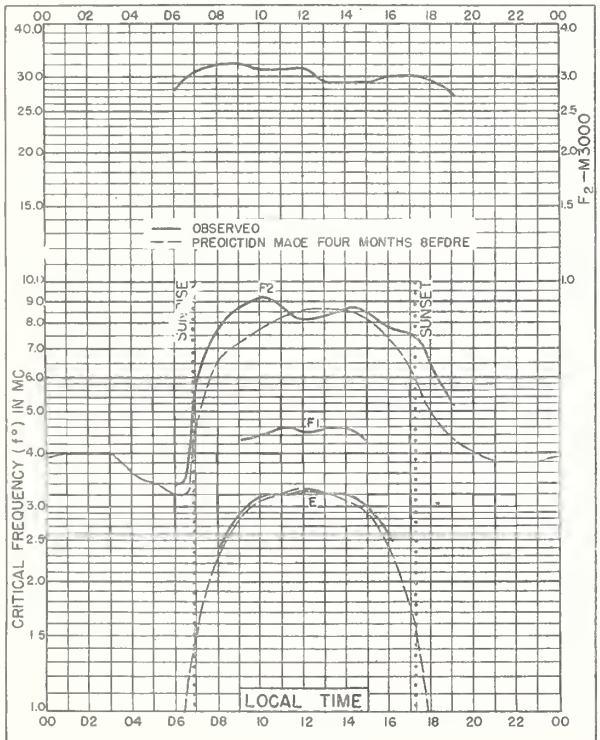


Fig. 53. KERMADEC IS.
29.3°S, 177.9°W
JULY 1946

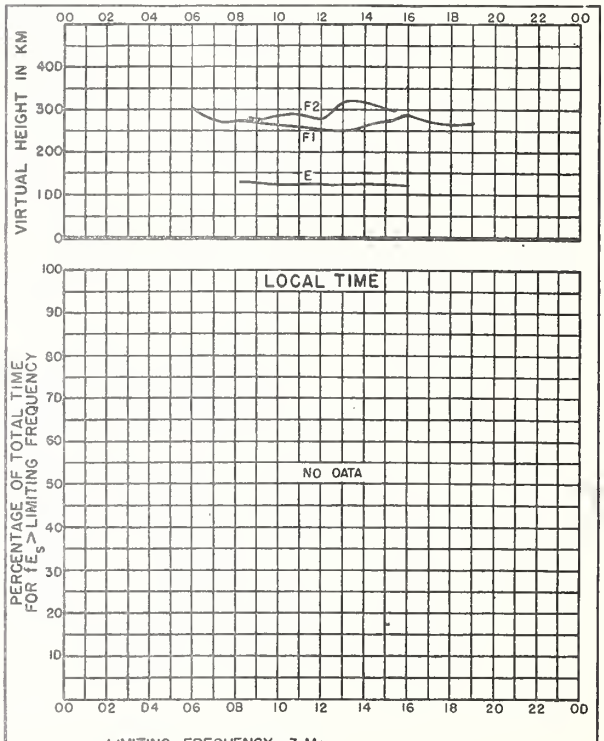


Fig. 54. KERMADEC IS.
JULY 1946

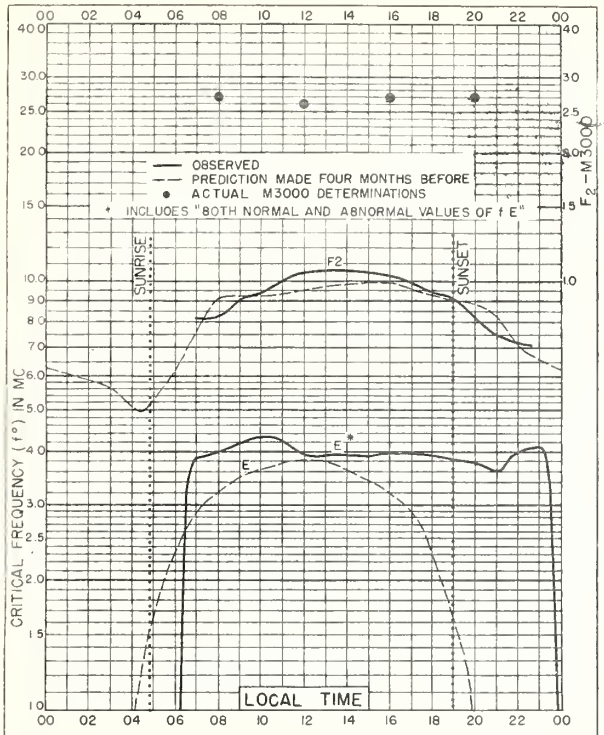


Fig. 55. PESHAWAR, INDIA
34.0°N, 71.5°E JUNE 1946

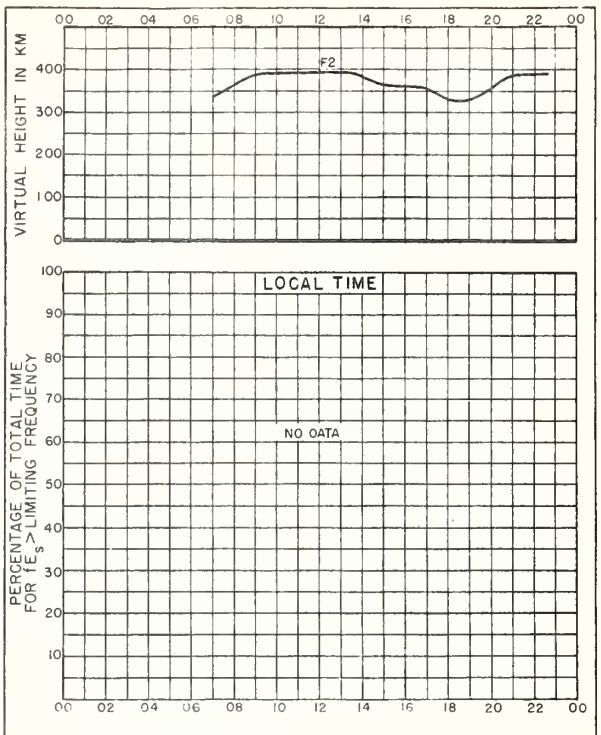


Fig. 56. PESHAWAR, INDIA JUNE 1946

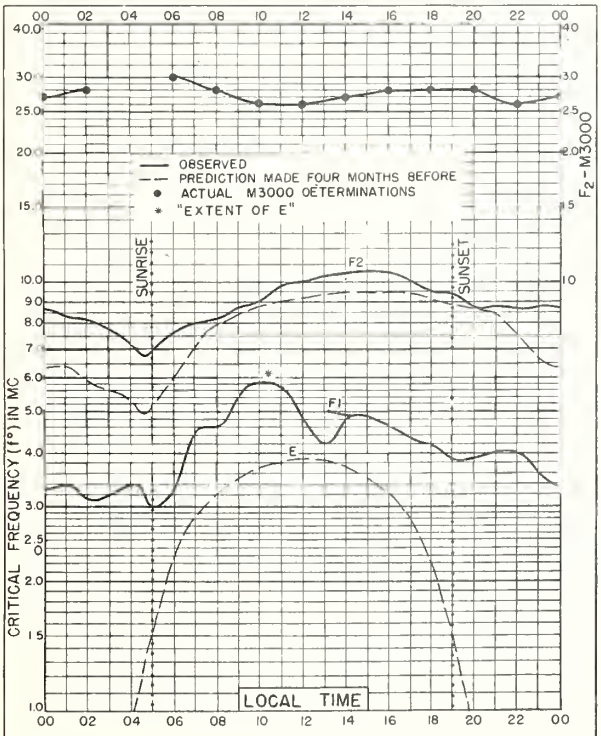


Fig. 57. CAIRO, EGYPT
30.6°N, 31.9°E JUNE 1946

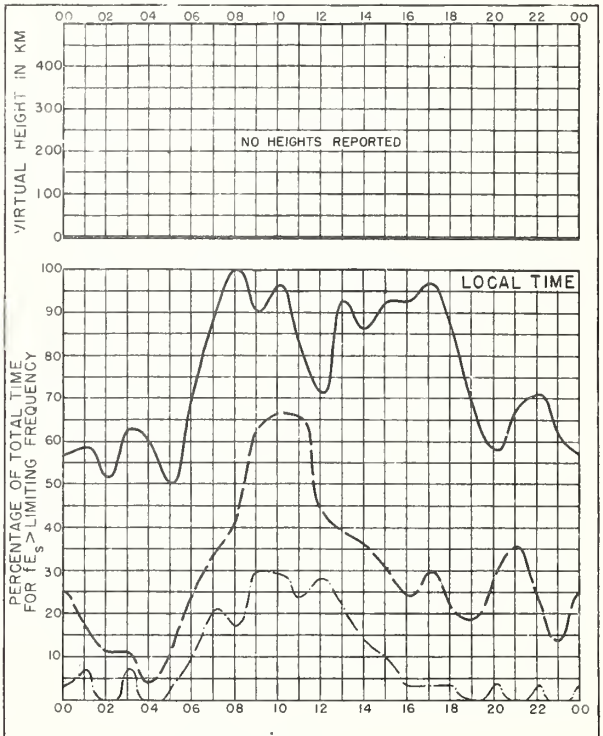


Fig. 58. CAIRO, EGYPT JUNE 1946

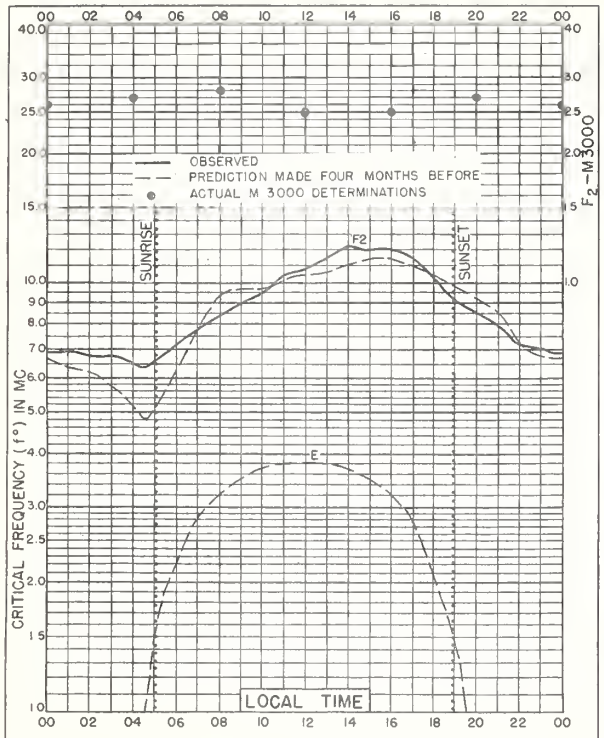


Fig. 59. DELHI, INDIA
28.6°N, 77.1°E JUNE 1946

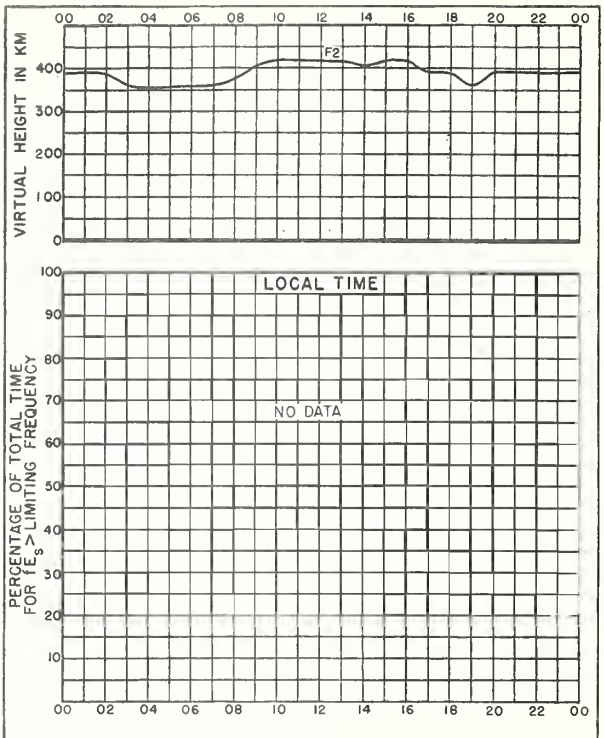


Fig. 60. DELHI, INDIA JUNE 1946

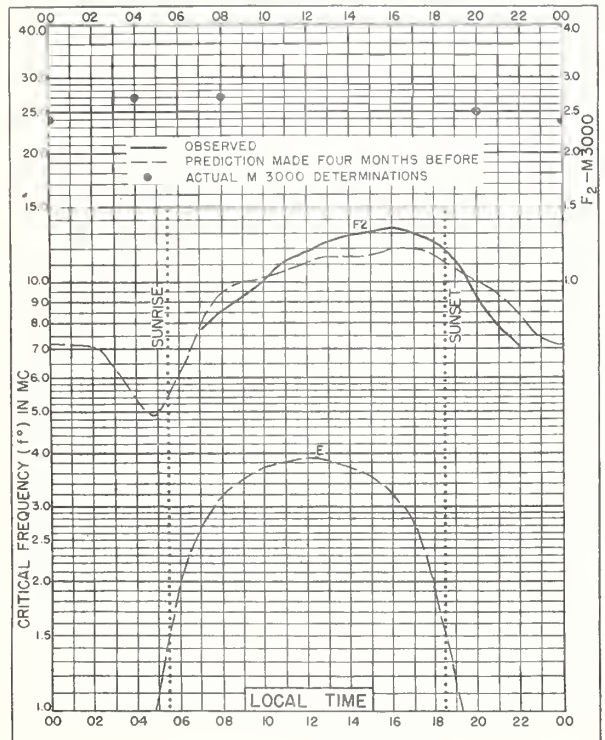


Fig. 61. BOMBAY, INDIA
19.0°N, 73.0°E JUNE 1946

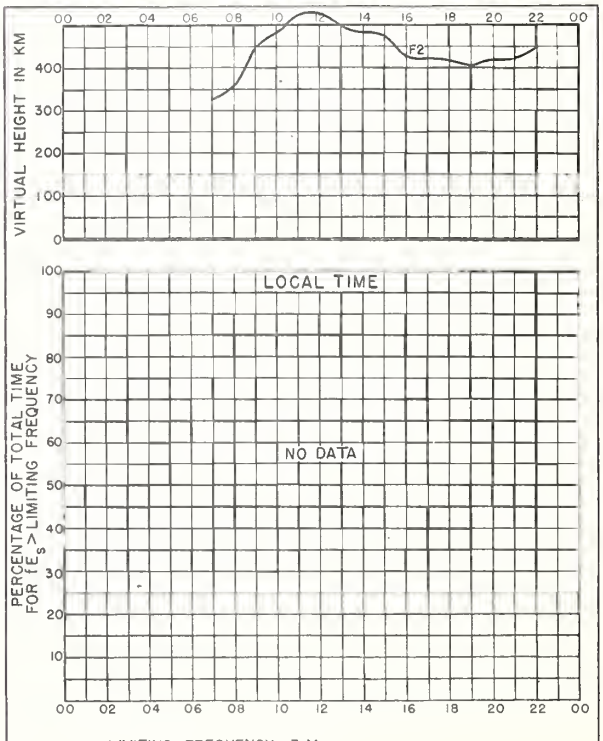


Fig. 62. BOMBAY, INDIA JUNE 1946

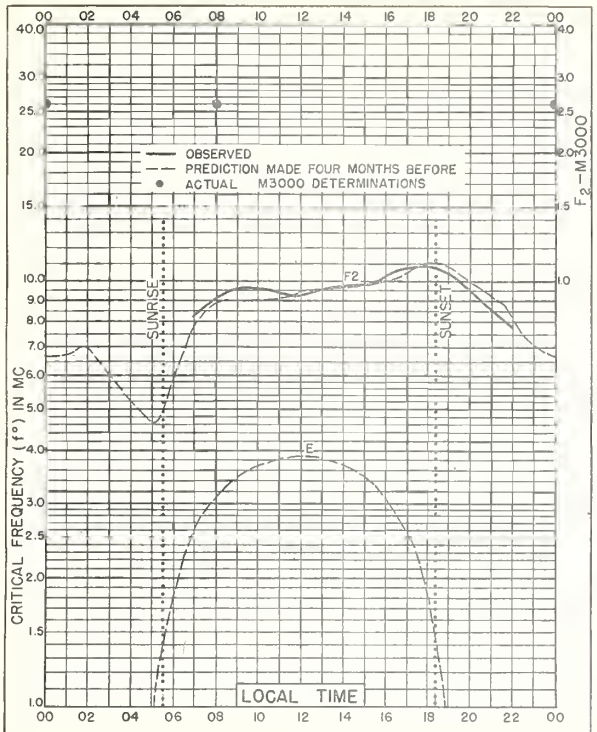


Fig. 63. MADRAS, INDIA
13.0°N, 80.2°E JUNE 1946

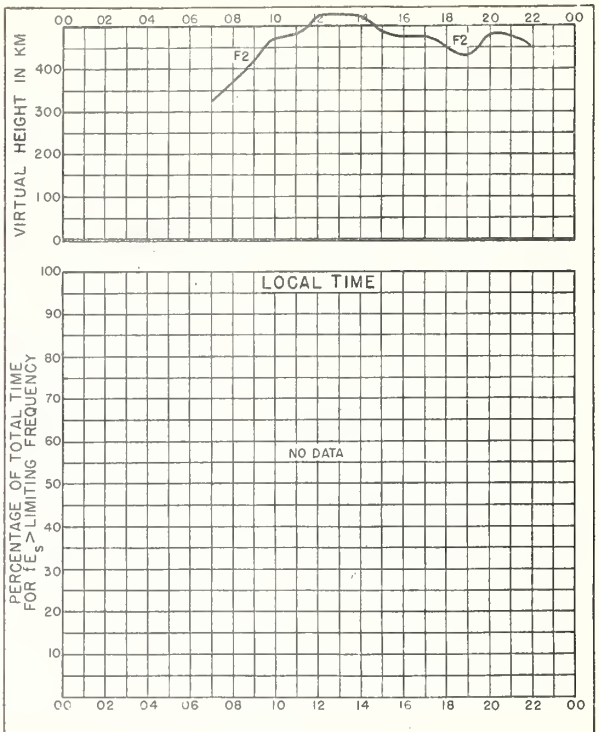


Fig. 64. MADRAS, INDIA JUNE 1946

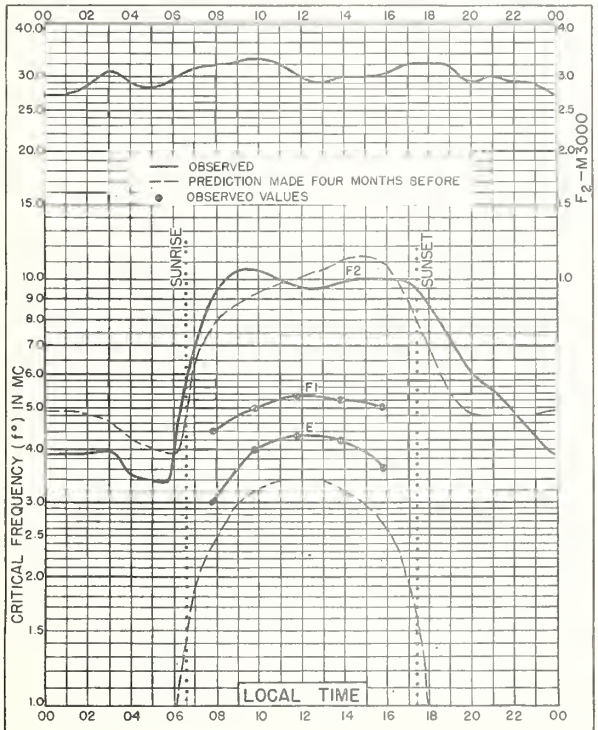


Fig. 65. RAROTONGA I.
21.3°S, 159.8°W JUNE 1946

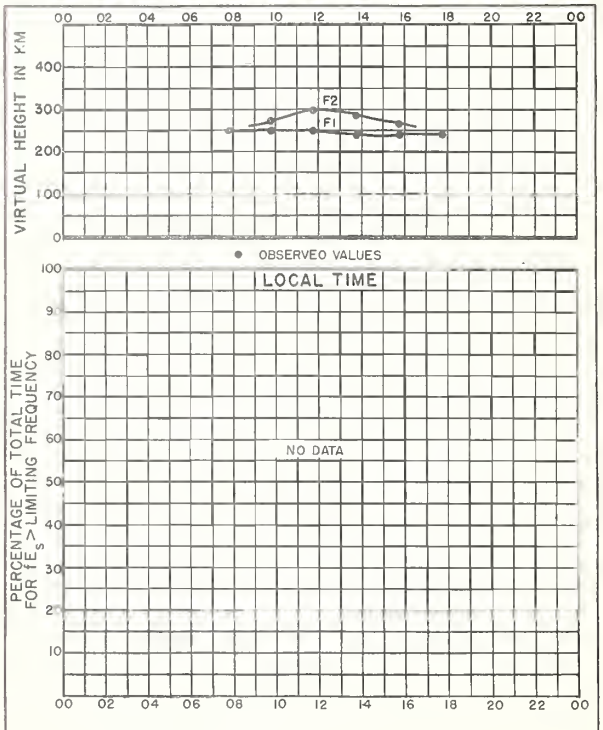


Fig. 66. RAROTONGA I. JUNE 1946

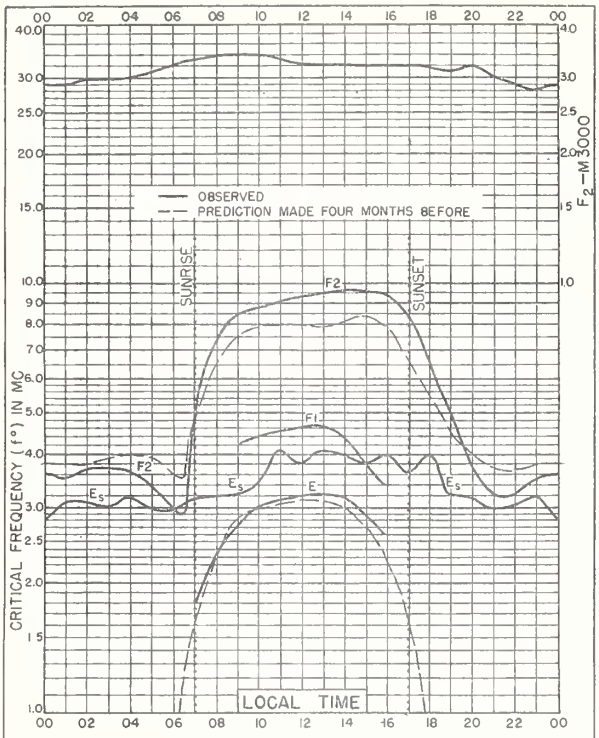


Fig. 67. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E JUNE 1946

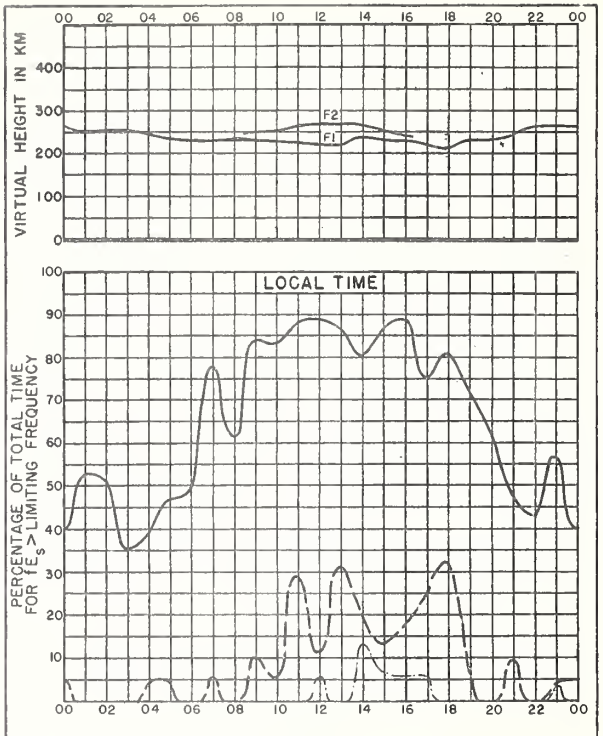


Fig. 68. WATHEROO, W. AUSTRALIA JUNE 1946

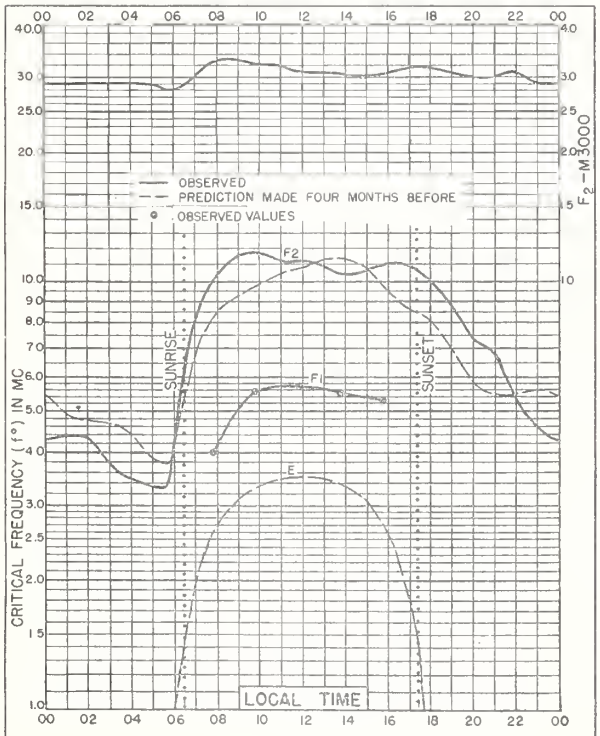


Fig. 69. RAROTONGA I.
21.3°S, 159.8°W MAY 1946

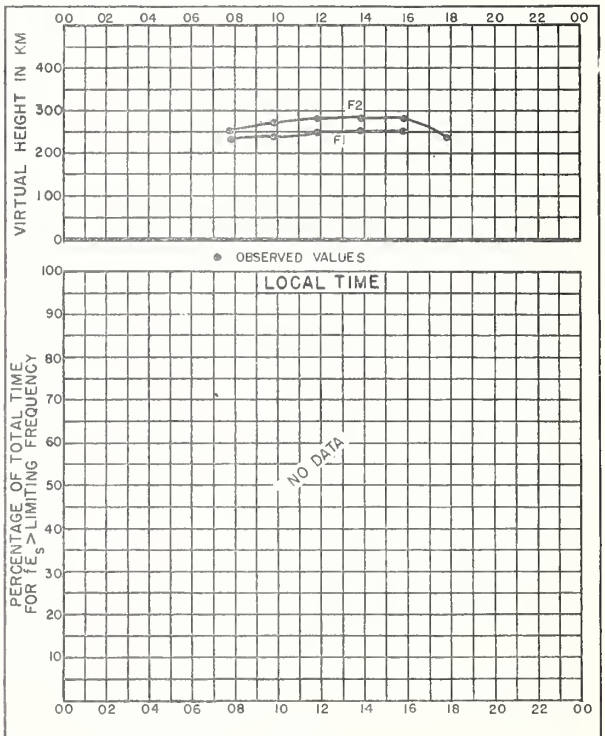


Fig. 70. RAROTONGA I. MAY 1946

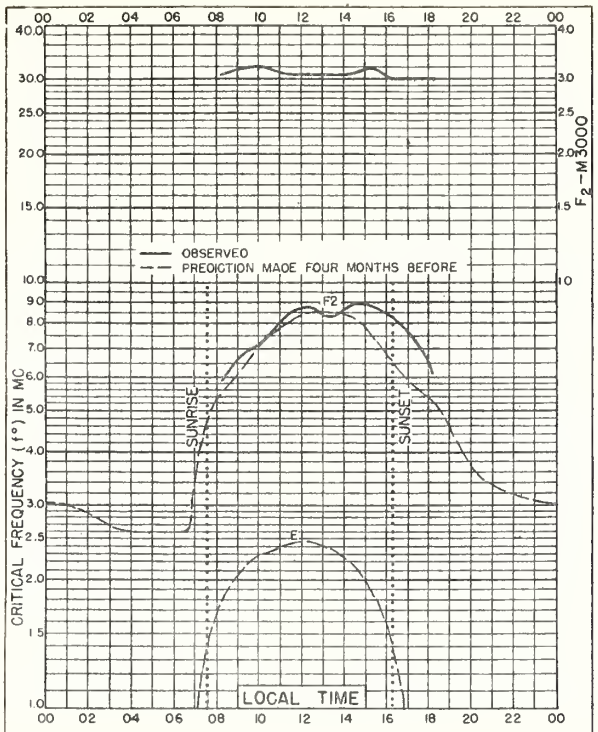


Fig. 71. CAMPBELL I.
52.5°S, 169.2°E MAY 1946

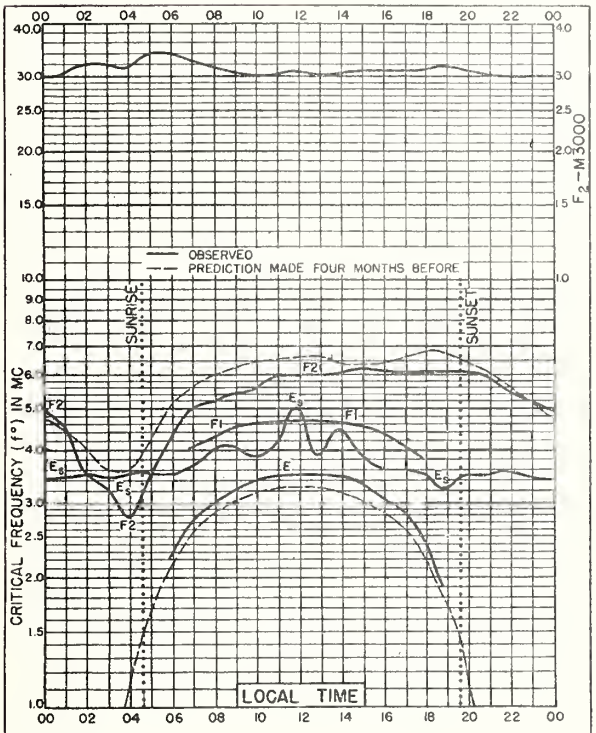


Fig. 72. HOBART, TASMANIA
42.8°S, 147.4°E JANUARY 1946

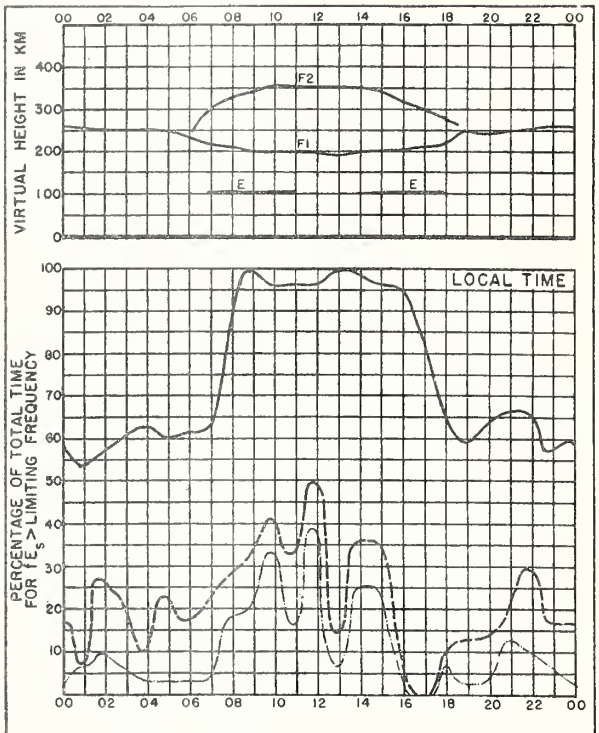


Fig. 73. HOBART, TASMANIA JANUARY 1946

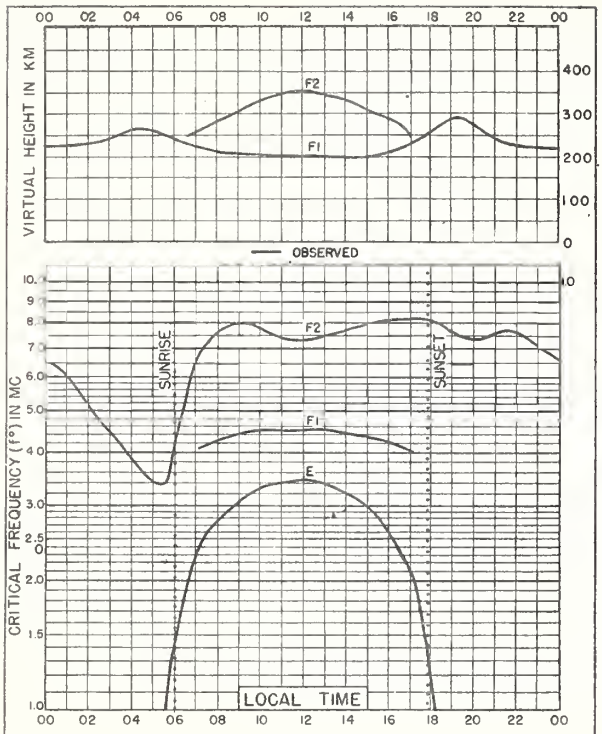


Fig. 74. HUANCAYO, PERU
12.0°S, 75.3°W SEPTEMBER 1943

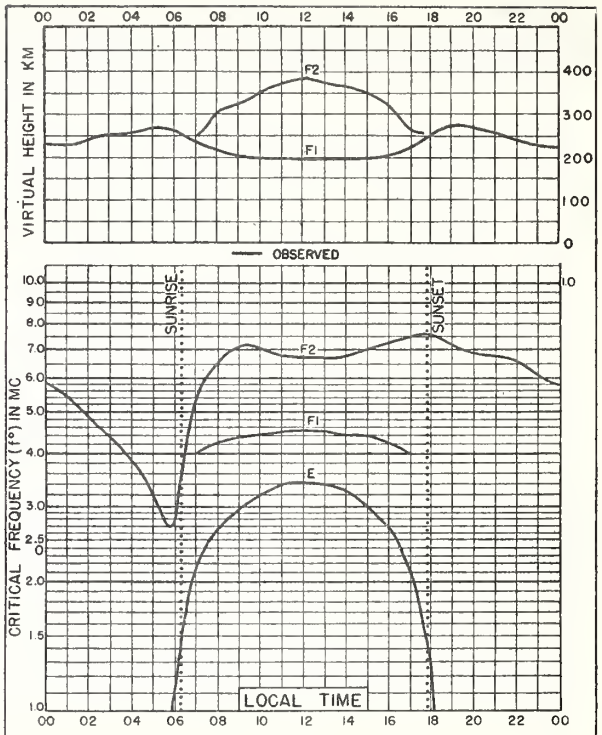


Fig. 75. HUANCAYO, PERU
12.0°S, 75.3°W AUGUST 1943

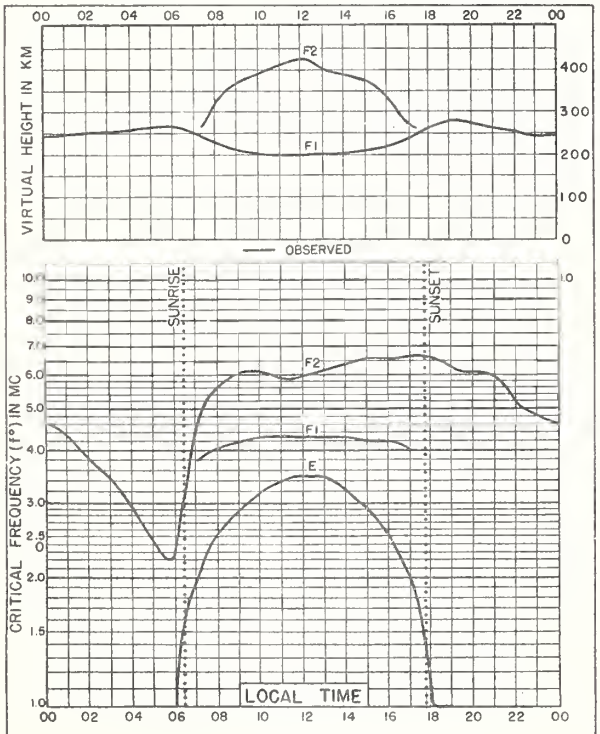


Fig. 76. HUANCAYO, PERU
12.0°S, 75.3°W JULY 1943

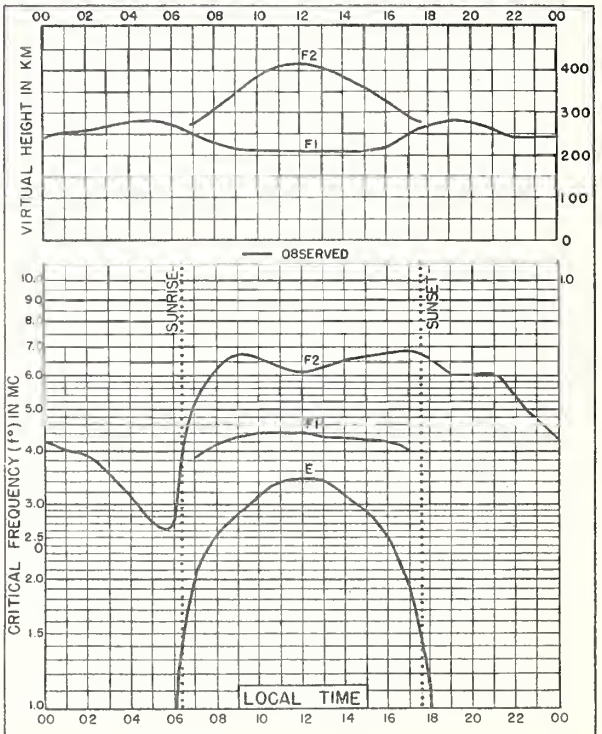


Fig. 77. HUANCAYO, PERU
12.0°S, 75.3°W JUNE 1943

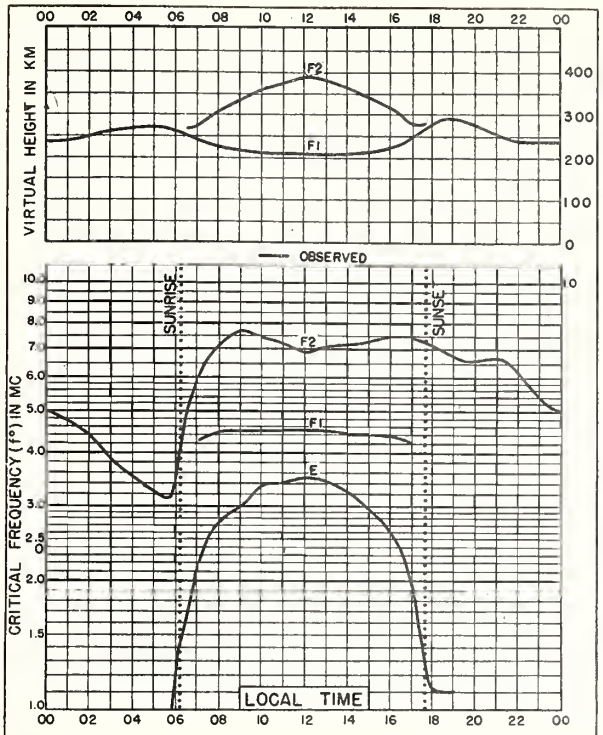


Fig. 78. HUANCAYO, PERU
12.0°S, 75.3° W
MAY 1943

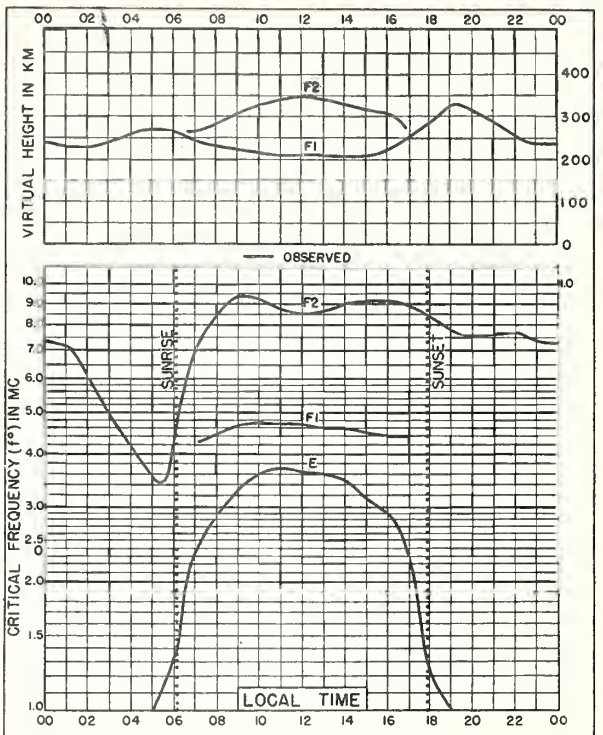


Fig. 79. HUANCAYO, PERU
12.0°S, 75.3°W
APRIL 1943

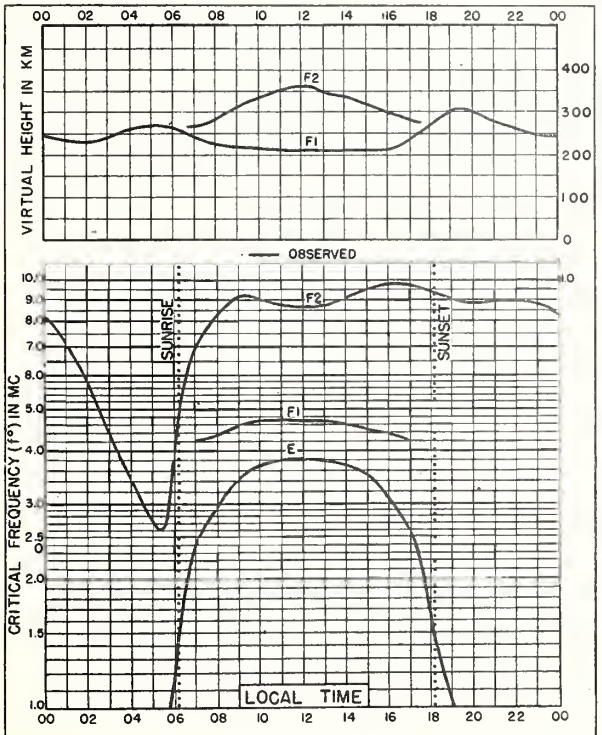


Fig. 80. HUANCAYO, PERU
12.0°S, 75.3°W
MARCH 1943

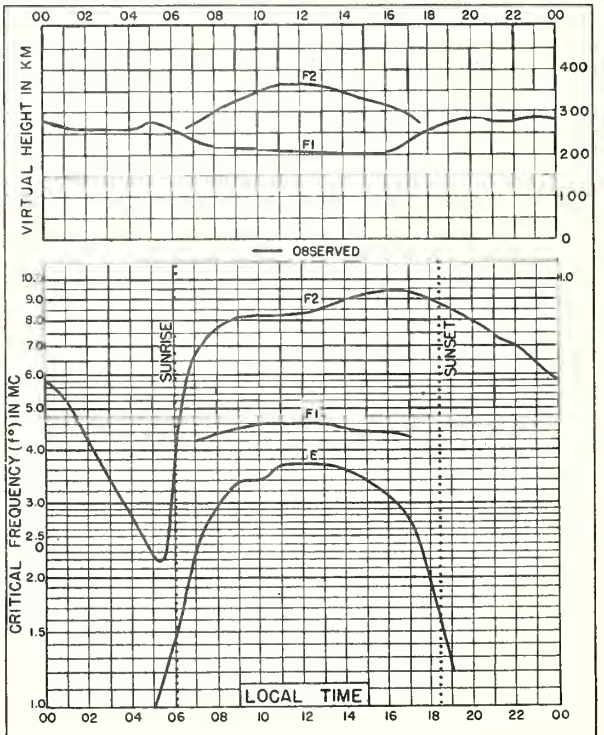


Fig. 81. HUANCAYO, PERU
12.0°S, 75.3°W
FEBRUARY 1943

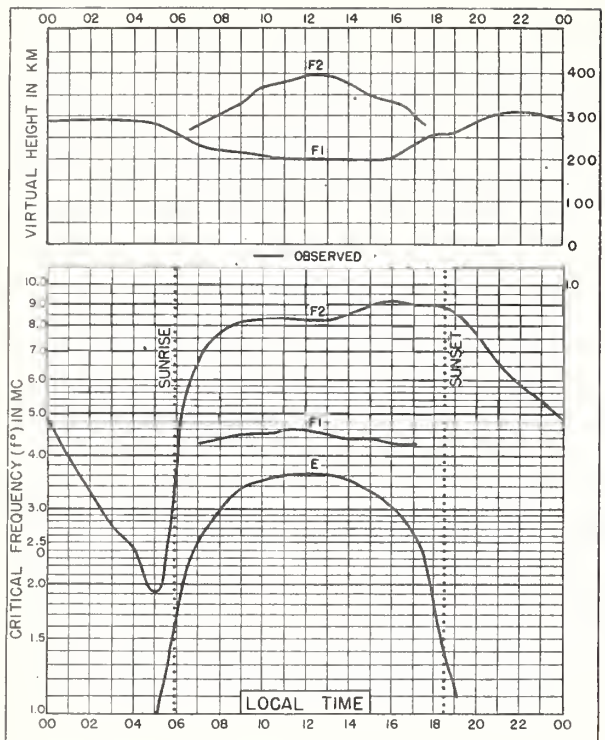
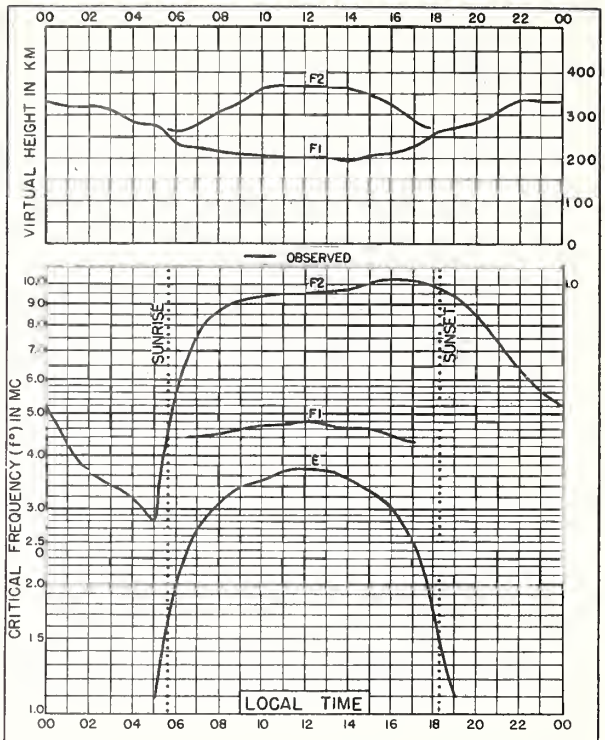


Fig. 82. HUANCAYO, PERU
12.0°S, 75.3°W JANUARY 1943



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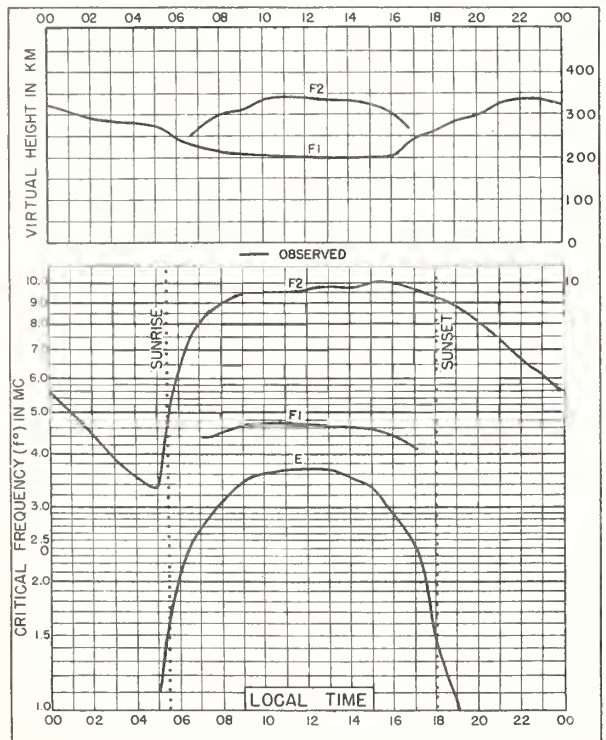

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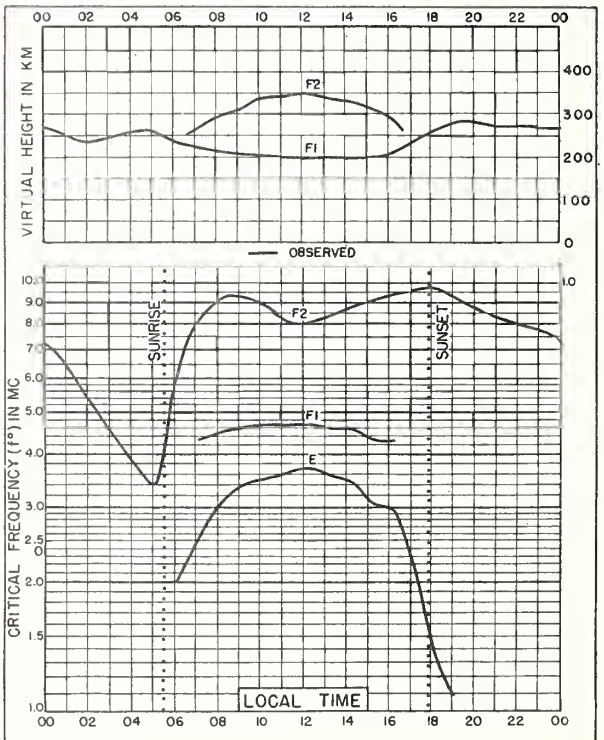

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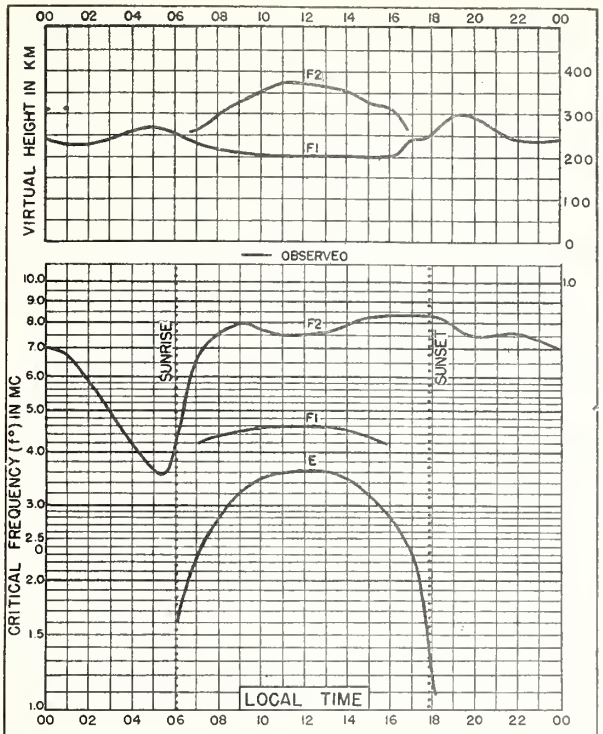

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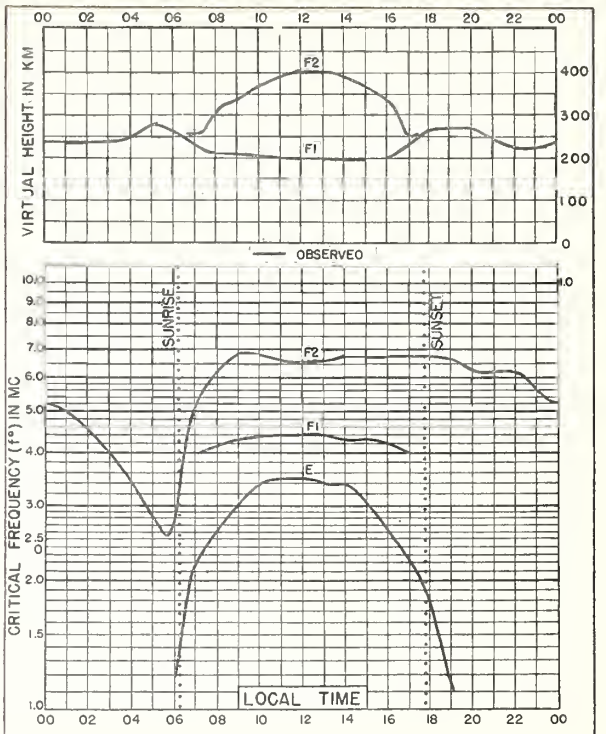

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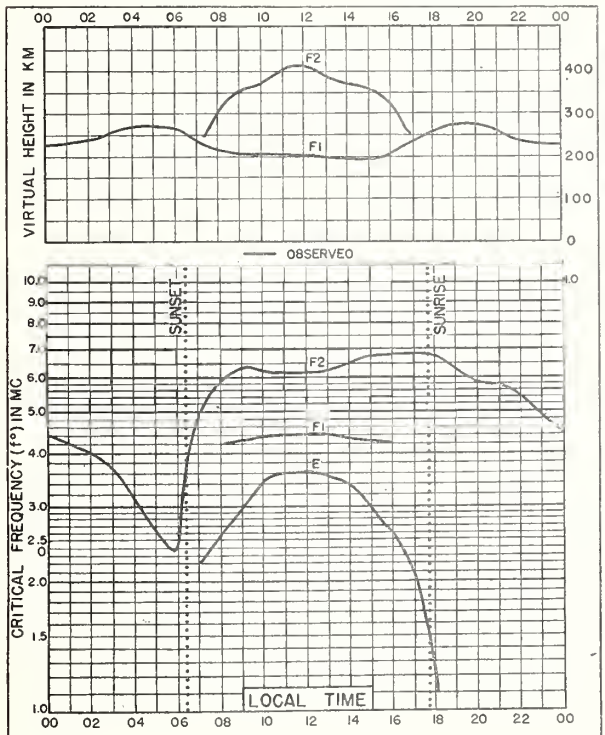

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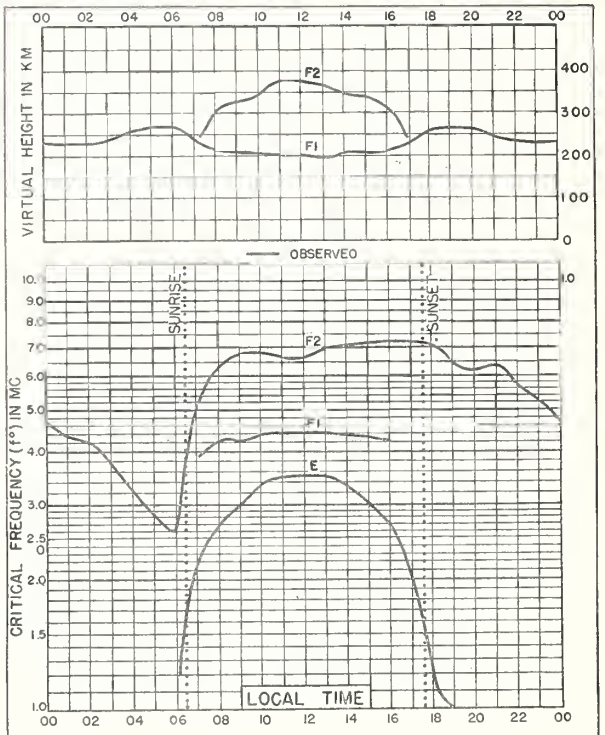

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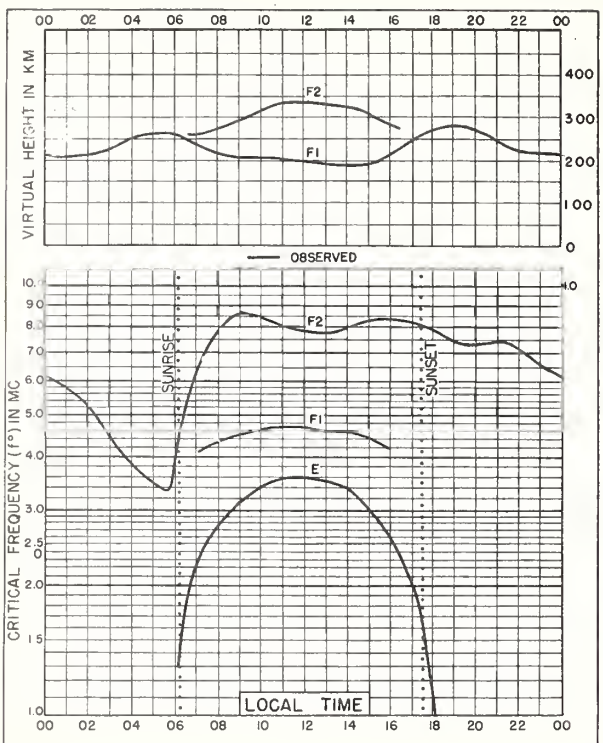

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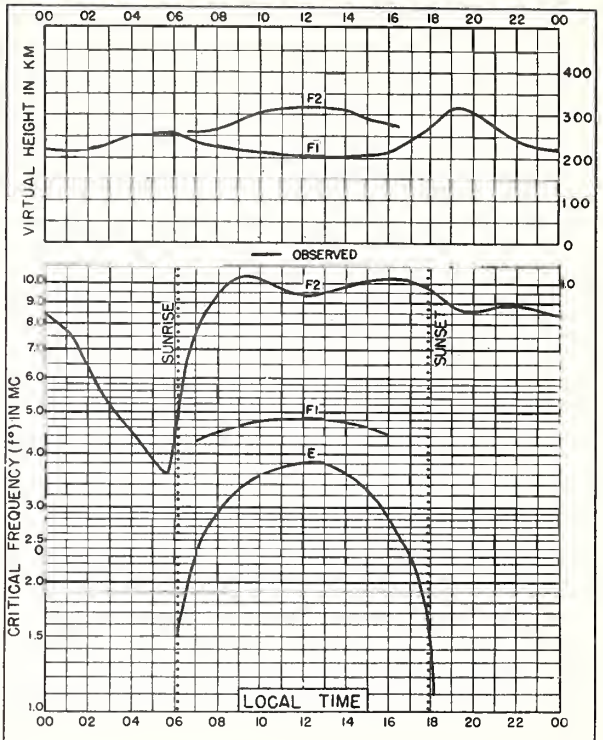

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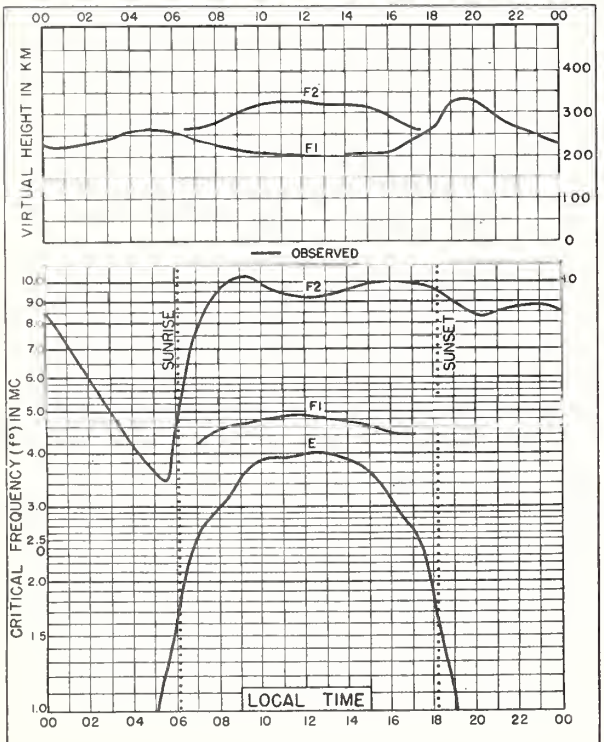

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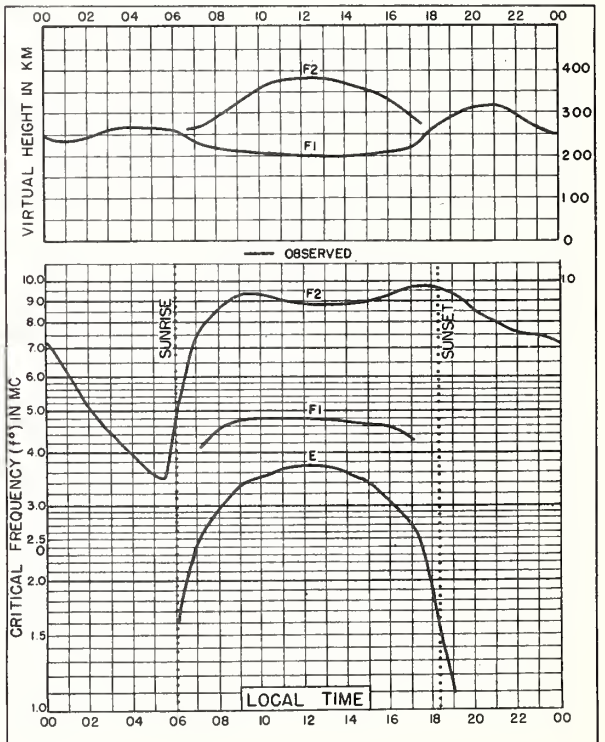

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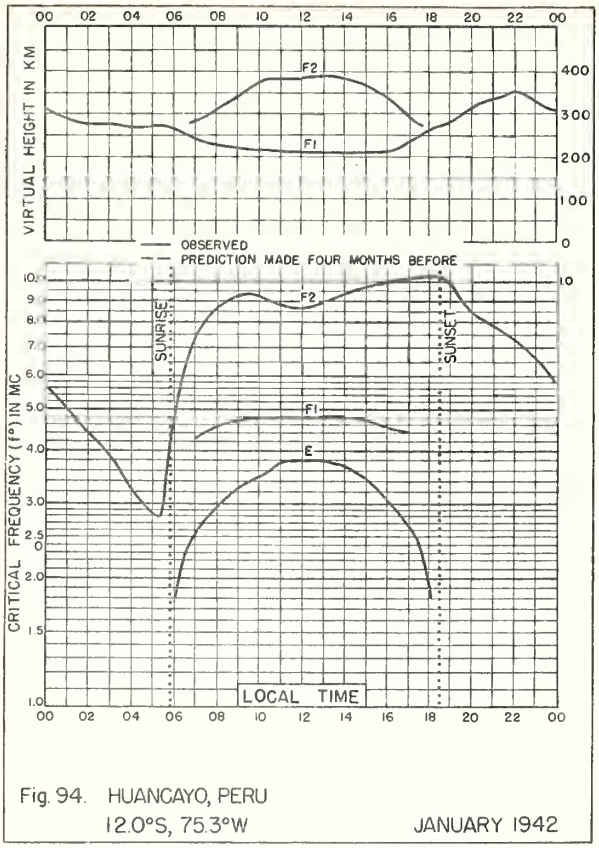

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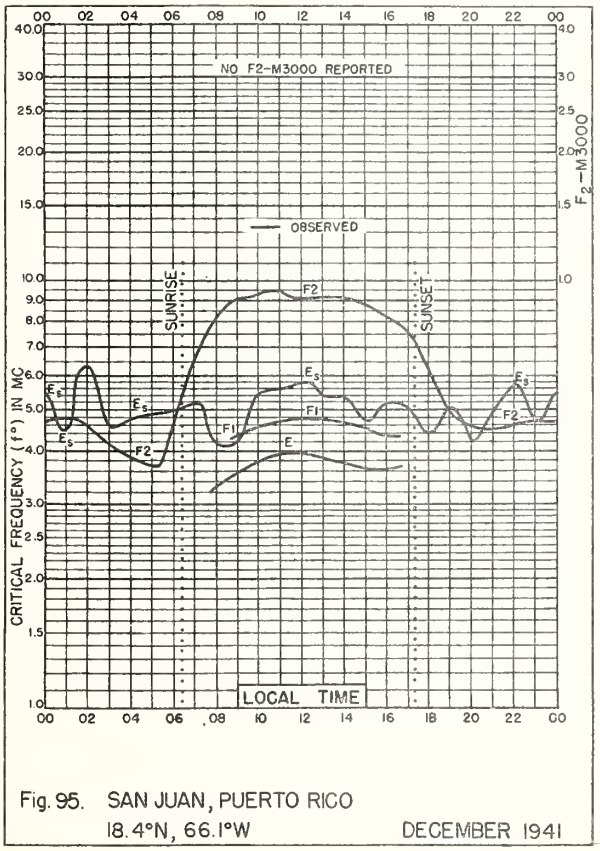

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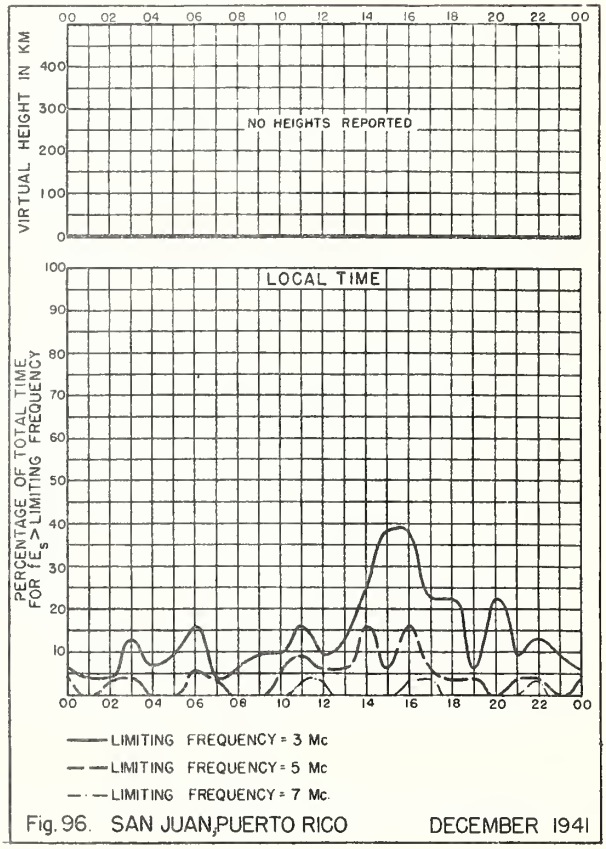

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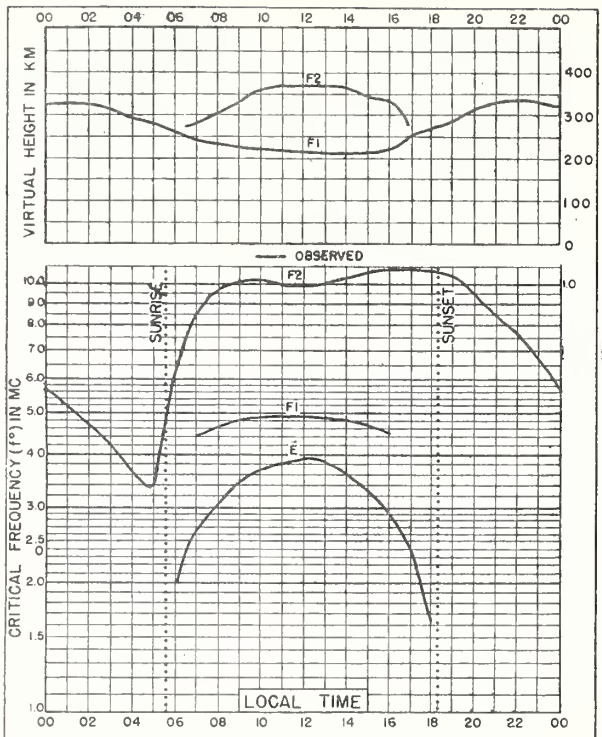

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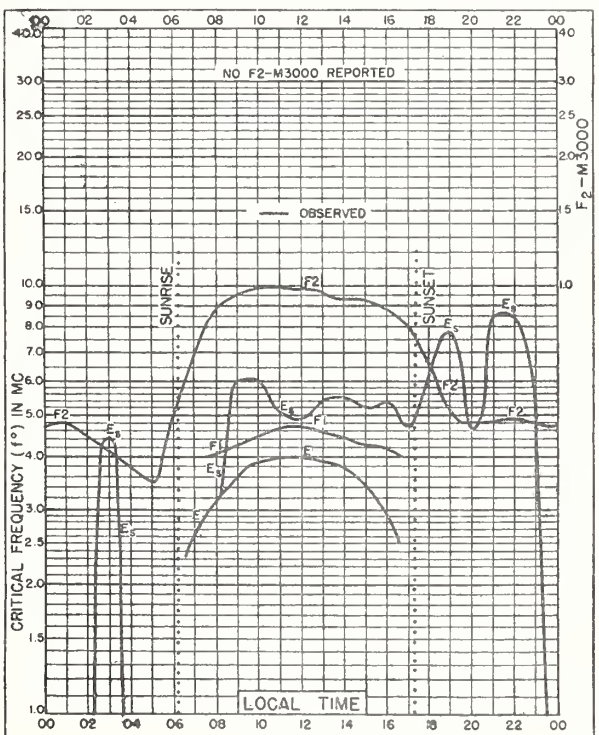

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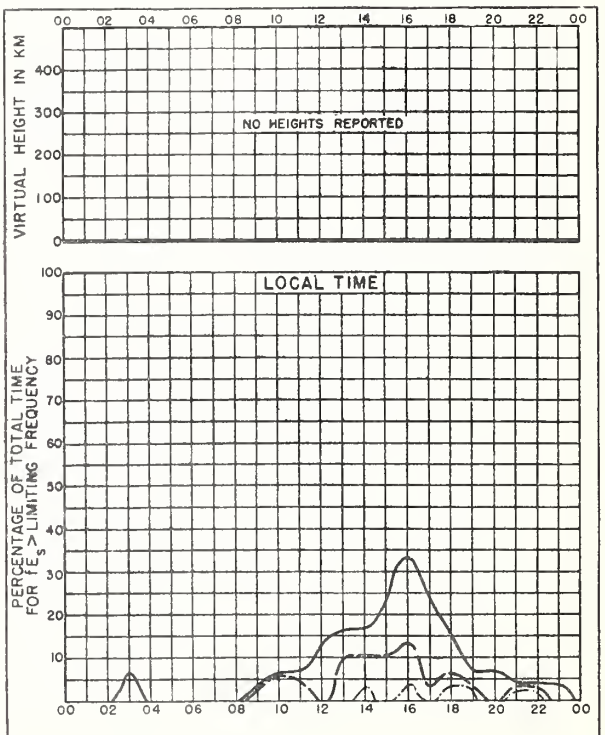

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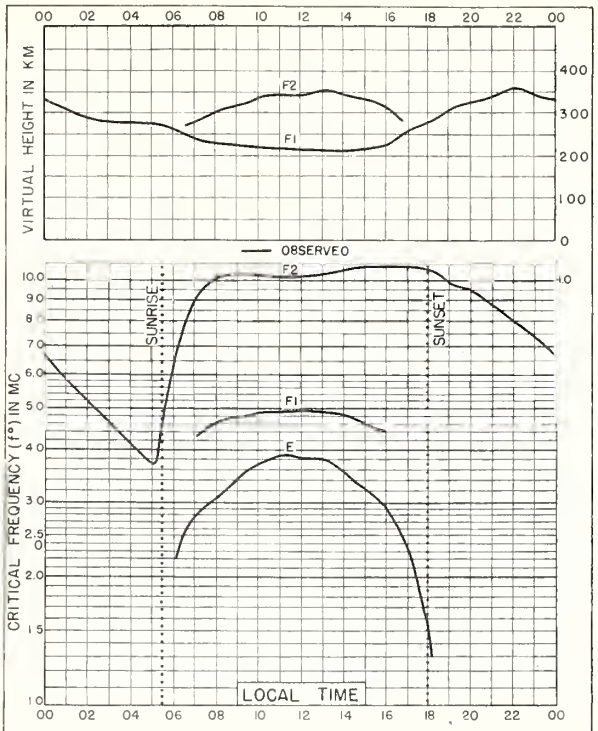

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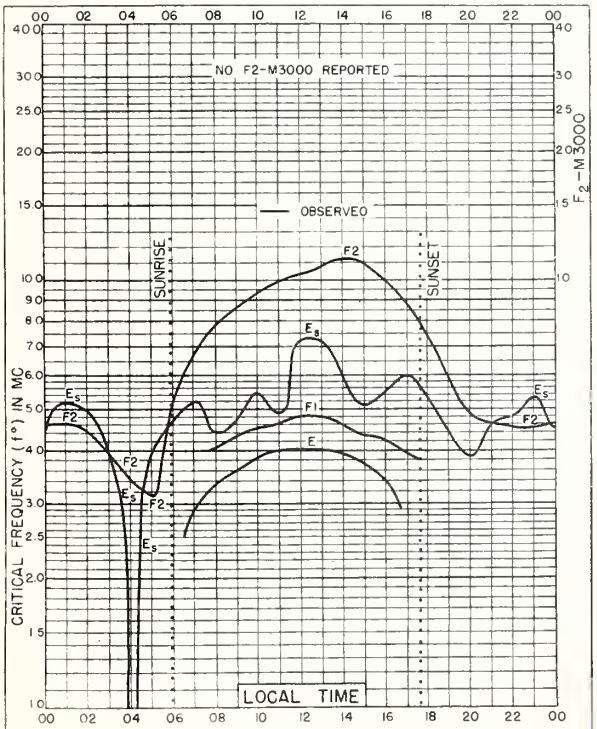

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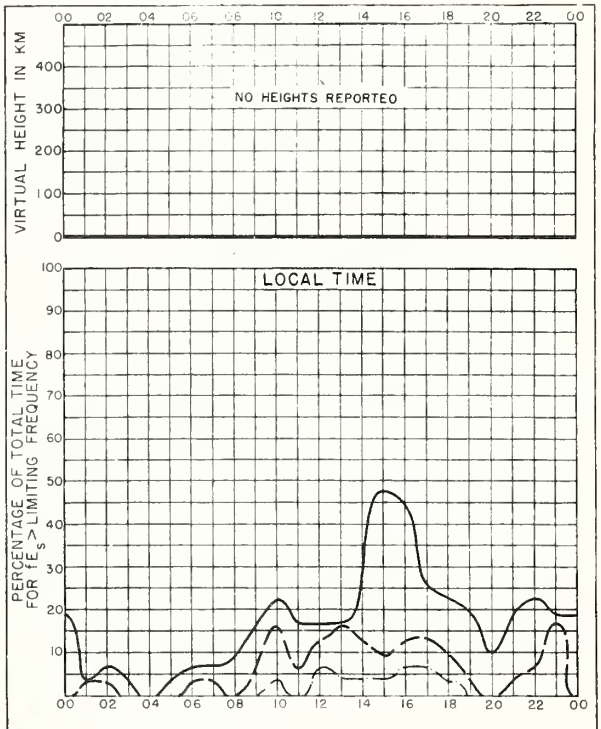

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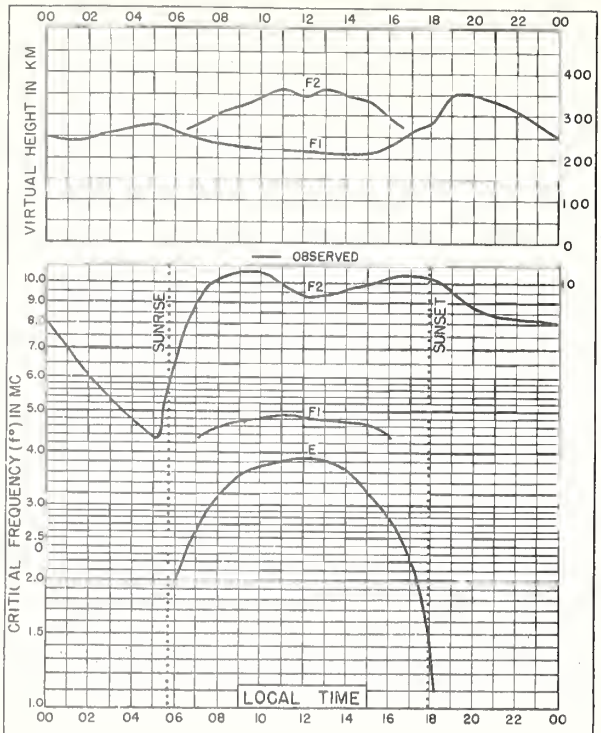

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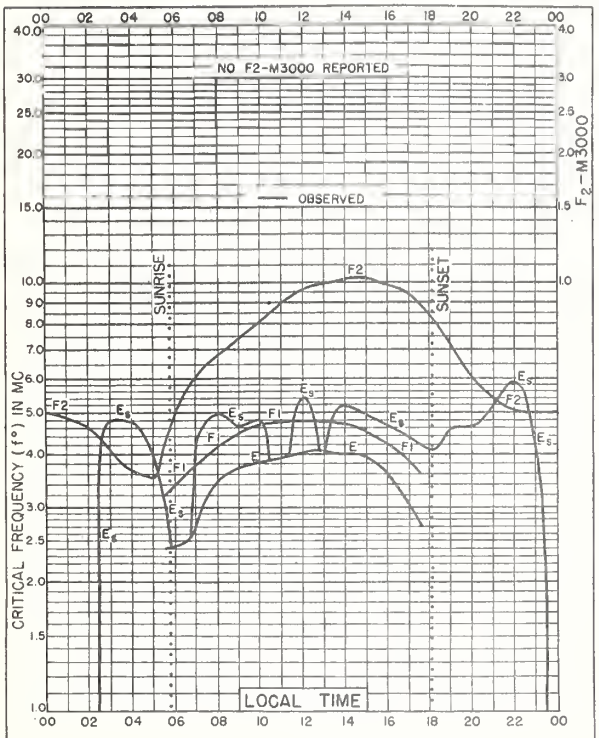

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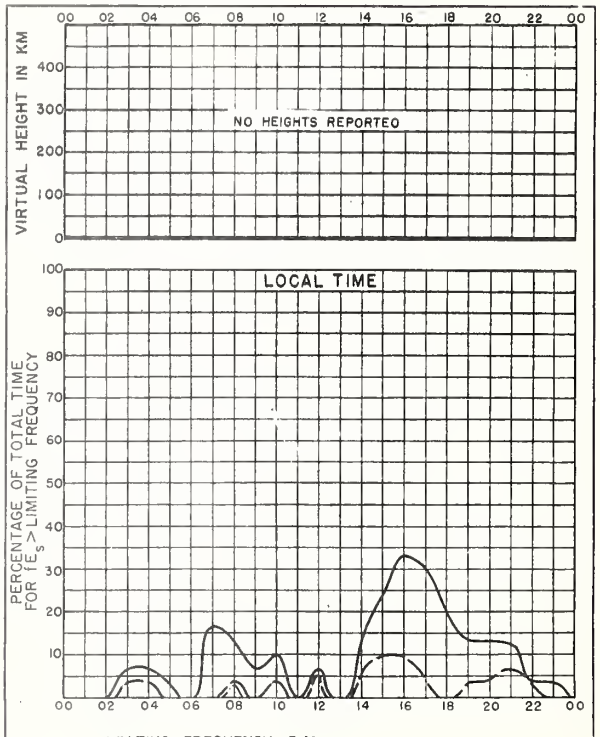

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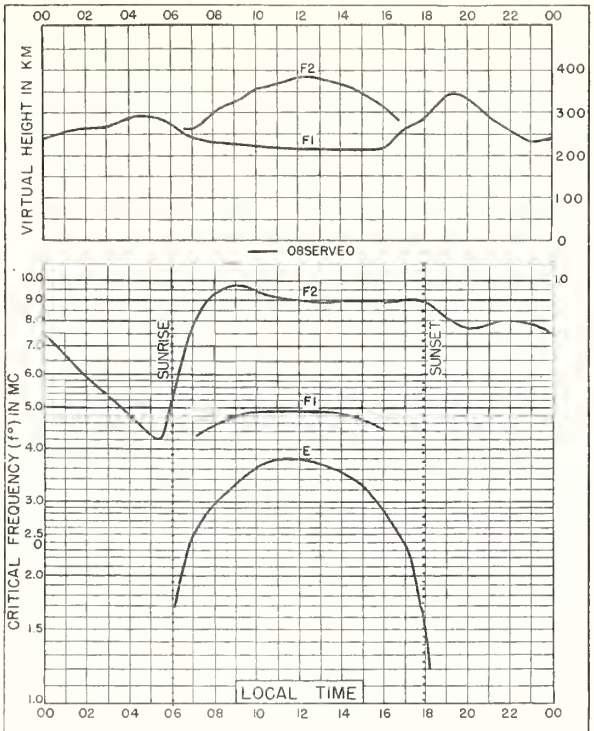

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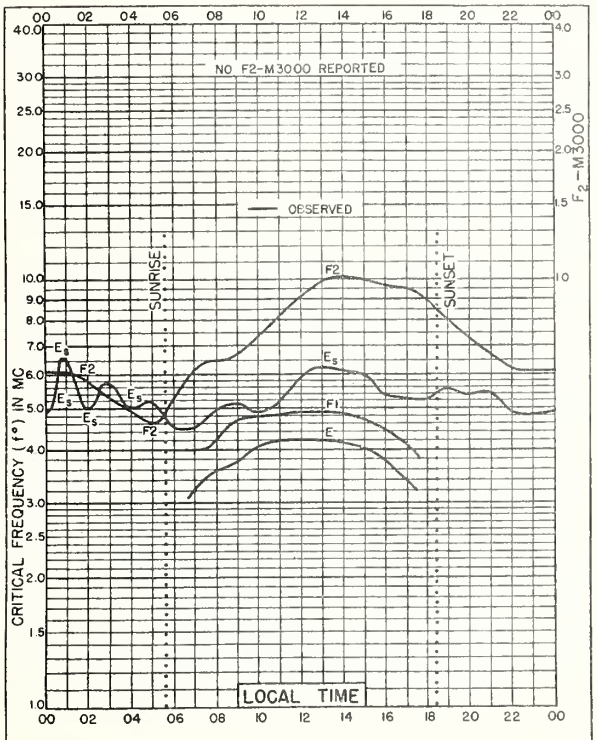

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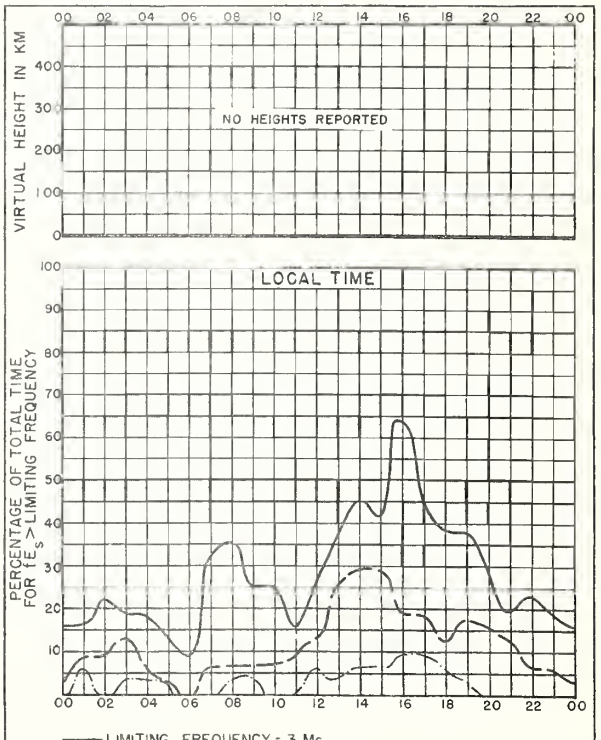

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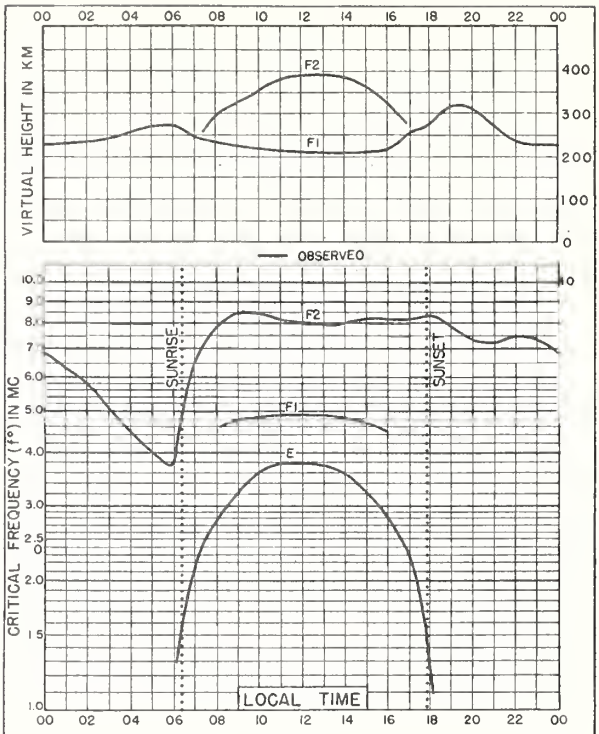

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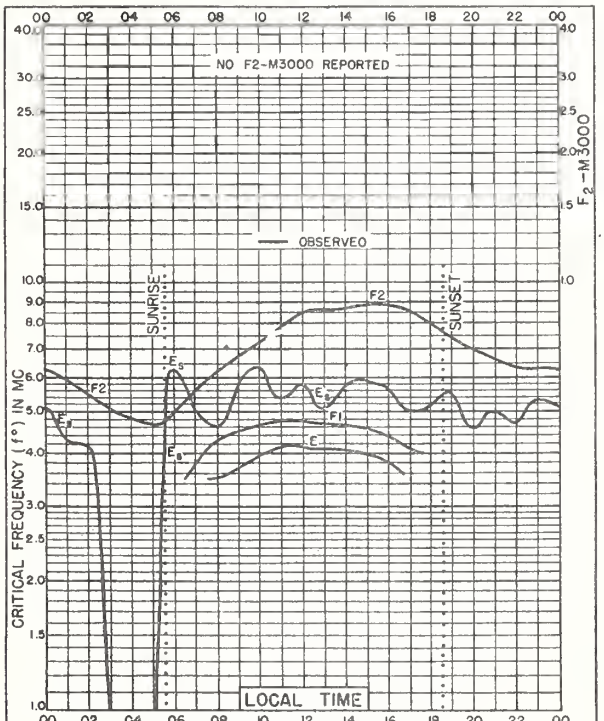

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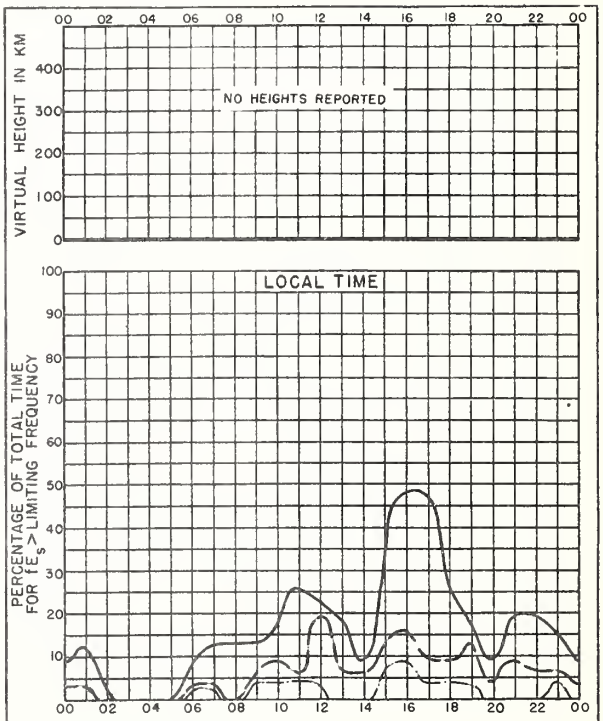

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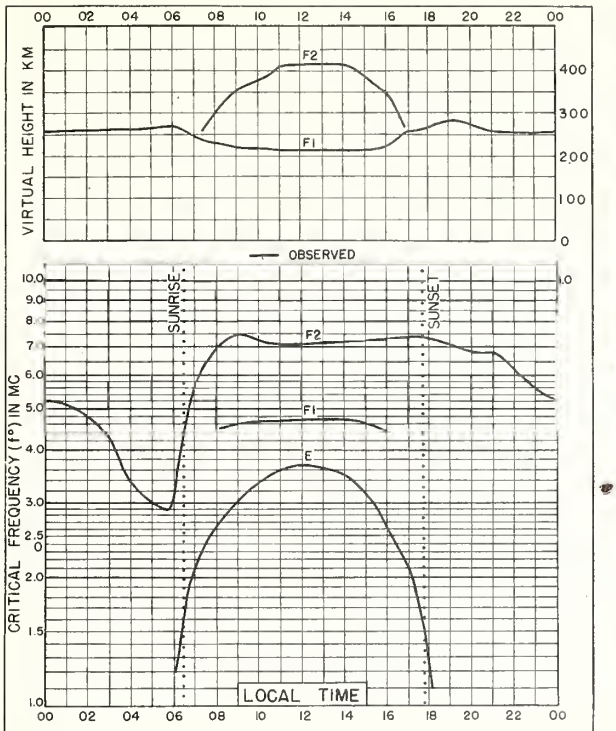

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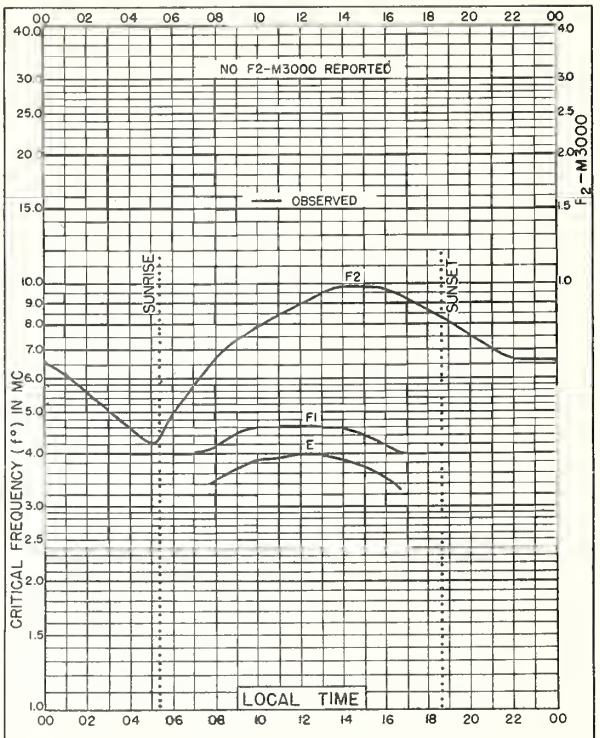

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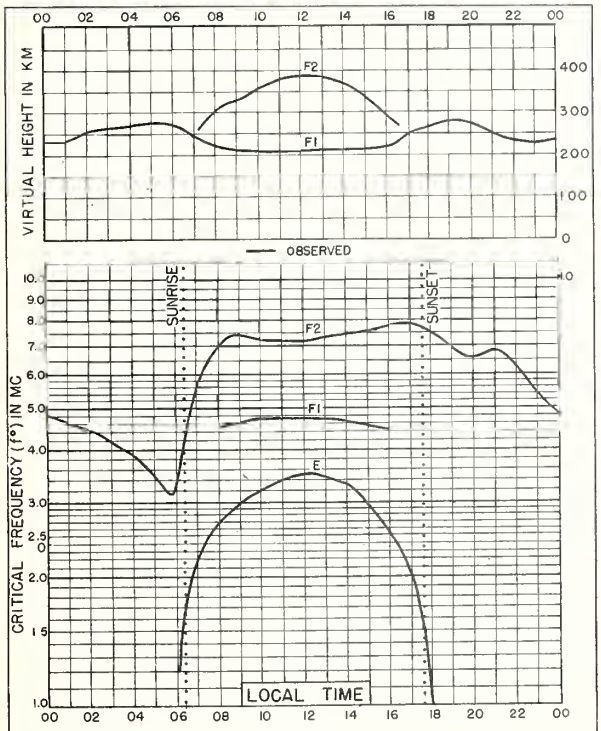

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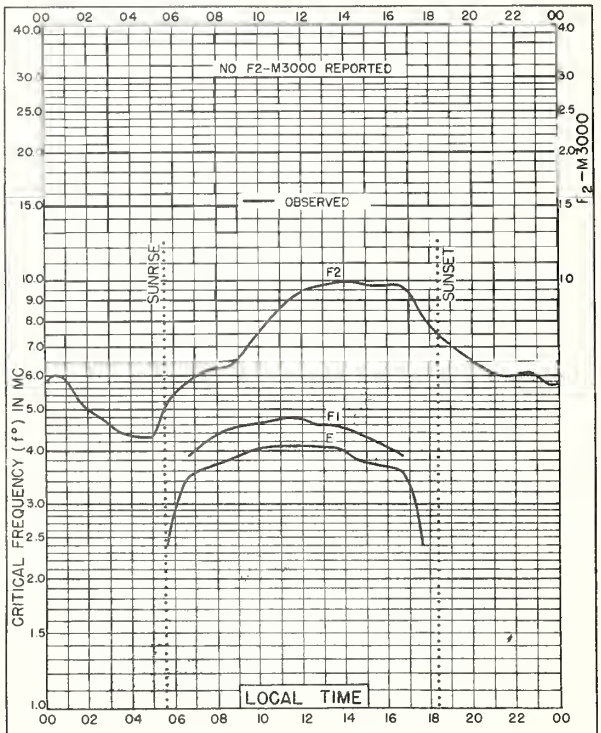

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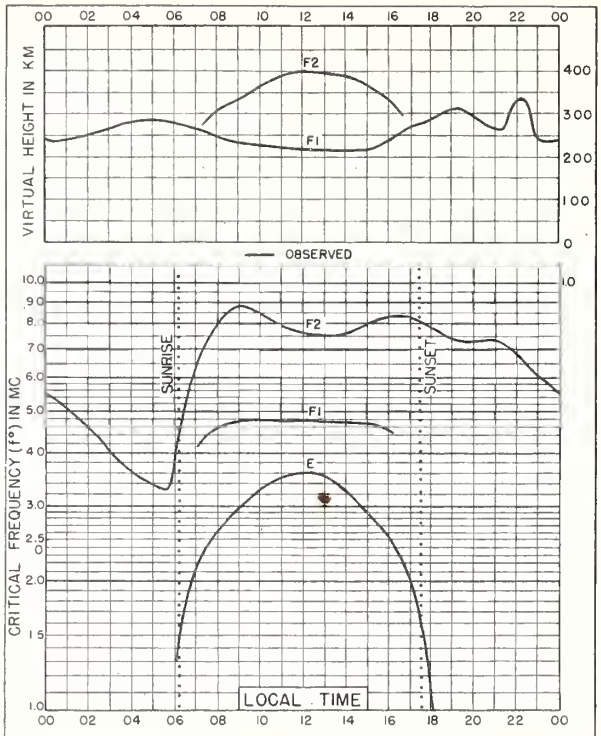

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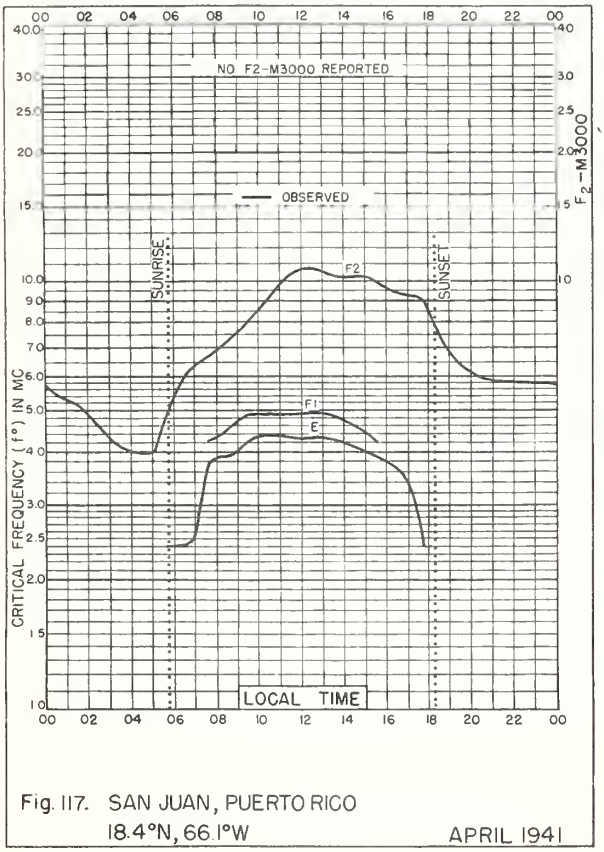

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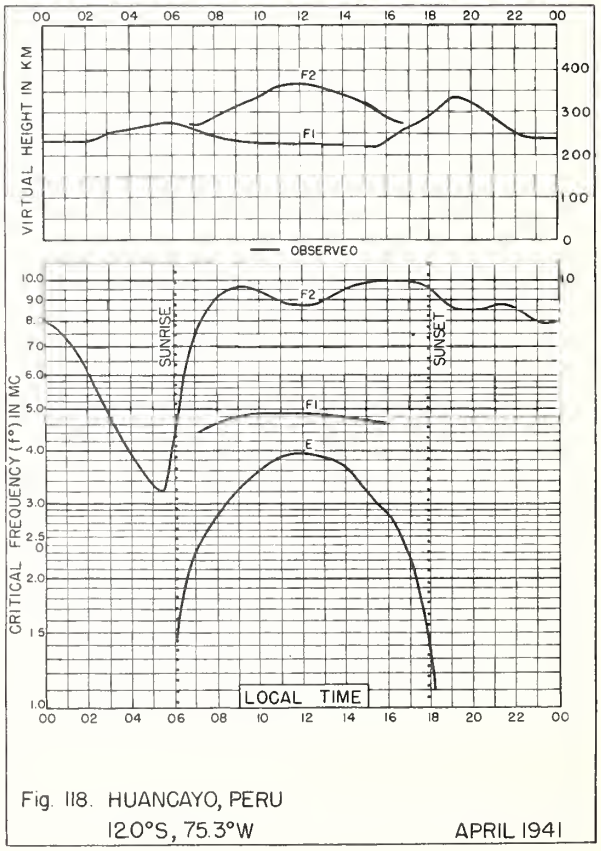

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